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Matric Number: 16/mhs02/001

Assignment Title: Food fortification

Course Title: Nutrition Planning and Policy

Course Code: NTD 404

Question:

1. List and explain the types of fortification
2. Enumerate FIVE advantages and disadvantages of food fortification.

Answers

Fortification is the practice of deliberately increasing the content of an essential micronutrient, i.e. vitamins and minerals (including trace elements) in a food, so as to improve the nutritional quality of the food supply and provide a public health benefit with minimal risk to health.

Types of Fortification

1. Mass fortification
2. Targeted fortification
3. Market driven fortification.
 - Mass fortification refers to the addition of micronutrients to foods commonly consumed by the general public, such as cereals, condiments and milk. It is usually instigated, mandated and regulated by the government sector. Mass fortification is generally the best option when the majority of the population has an unacceptable risk, in terms of public health, of being or becoming deficient in specific micronutrients. In some situations, deficiency may be demonstrable, as evidenced by unacceptably low intakes and/or biochemical signs of deficiency. In others, the population may not actually be deficient according to usual biochemical or dietary criteria, but are likely to benefit from fortification.
 - Targeted fortification refers to the fortification of foods designed for specific population subgroups, such as complementary weaning foods for infants. In targeted food fortification programmes, foods aimed at specific subgroups of the population are fortified, thereby increasing the intake of that particular group rather than that of the population as a whole. Examples include complementary foods for infants and young children, foods developed for school feeding programmes, special biscuits for children and pregnant women, and rations (blended foods) for emergency feeding and displaced persons. In some cases,

such foods may be required to provide a substantial proportion of daily micronutrient requirements of the target group. Therefore, other sources of micronutrients may need to be provided. In particular, it may be necessary to add iodized salt to foods, provide iron supplements to pregnant women or supply high-dose vitamin A supplements to young children and postpartum women. Whenever possible, fresh fruits and vegetables should be added to the diets of displaced persons relying on blended foods. Fortified foods for displaced persons are often targeted at children and pregnant or lactating women

- Market-driven fortification refers to the situation where the food manufacturer takes the initiative to add one or more micronutrients to processed foods, usually within regulatory limits, in order to increase sales and profitability. The term “market-driven fortification” is applied to situations whereby a food manufacturer takes a business-oriented initiative to add specific amounts of one or more micronutrients to processed foods. Although voluntary, this type of food fortification usually takes place within government-set regulatory limits. Market-driven fortification can play a positive role in public health by contributing to meeting nutrient requirements and thereby reducing the risk of micronutrient deficiency. Market-driven fortification can also improve the supply of micronutrients that are otherwise difficult to add in sufficient amounts through the mass fortification of staple foods and condiments because of safety, technological or cost constraints. Examples include certain minerals (e.g. iron, calcium) and sometimes selected vitamins (e.g. vitamin C, vitamin B2). Market-driven fortification is more widespread in industrialized countries, whereas in most developing countries the public health impact of market-driven food interventions is still rather limited. However, their importance is likely to be greater in the future, because of increasing urbanization and wider availability of such foods.

Benefits of food fortification

1. Prevention or minimization of the risk of occurrence of micronutrient deficiency in a population or specific population groups.
2. Contribution to the correction of a demonstrated micronutrient deficiency in a population or specific population groups.
3. Beneficial effects of micronutrients consistent with maintaining or improving health (e.g. there is some evidence to suggest that a diet rich in selected antioxidants might help to prevent cancer and other diseases).
4. Potential for an improvement in nutritional status and dietary intakes.
5. Fortification is planned in such a way that the characteristics of the food are not altered, such as the taste, the appearance and the texture.

Limitations of food fortification

1. A fortified food product is rich in a particular micronutrient but in low-income countries people may often suffer from multiple micronutrient deficiencies and hence they may not benefit by consuming a fortified product rich in a particular micronutrient.
2. Population groups who consume relatively small amounts of food, such as infants, young children and the elderly are less likely to benefit from the consumption of fortified foods.
3. Individuals in the community who cannot afford to buy the staples or are dependent on government's PDS system for their staples may not get benefitted via normal food fortification plans. For such populations, fortified staples must be circulated to them via the PDS system.
4. Fortified foods have some added micronutrients. Many researchers believe that dietary diversity is a better approach to attain the nutrient requirements in a natural manner.
5. More knowledge is required about the impact of interactions among nutrients. For example, the presence of large amounts of calcium can inhibit the absorption of iron from a fortified food; the presence of vitamin C has the opposite effect and increases iron absorption.