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Adaptation and Validation of the *5 Keys to Safer Food Manual* of WHO in primary schools in Guatemala

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1. INTRODUCTION

In many countries of the Region of the Americas, diseases associated with inadequate food protection and environmental sanitation measures are a serious problem. Foodborne diseases (FBD) are caused by the consumption of food or beverages contaminated with microorganisms and/or toxic chemicals that can even result in death.

This type of disease poses a serious threat to health, affecting children, pregnant women, and the elderly primarily. Every year, millions of children die from diarrheal diseases, and many more experience frequent episodes of diarrhea, resulting in the deterioration of their nutritional status. According to WHO, 70% of diarrhea cases are due to the consumption of contaminated food, causing disease and even death.

In Latin America, diarrheal diseases are among the five leading causes of death in all age groups. In developing countries like Guatemala, especially in rural areas, a substantial number of etiologic agents cause diarrhea or other types of foodborne disease.

Most foodborne diseases can be attributed to improper food handling during preparation and may be due to:

1. The poor health or hygiene of food handlers
2. Cross-contamination of cooked food with raw food or contaminated surfaces;
3. Failure to thoroughly cook food, which means that all germs are not killed.



2. PURPOSE

The purpose of the *Five Keys to Safer Food Manual* is to offer guidelines and reference material for the educational community (primary school administration, teachers, and students), so that they can teach, learn, and internalize five basic rules to keep food safe and prevent its contamination.

This manual has been adapted to enable the contents to be taught at primary schools throughout the country as part of the Global School Health Initiative promoted by the World Health Organization (WHO), the Pan American Health Organization (PAHO), and the Institute of Nutrition of Central America and Panama (INCAP), considering schools not only places for learning science and culture, but promoters of the healthy development of children, adolescents, parents, and teachers.

With these manuals, we hope to help educate school children about this issue, so that children and their families will internalize and practice these five keys to reducing the emergence of foodborne diseases and thereby help improve nutrition and family health.

3. GENERAL OBJECTIVE

Adaptation of the *Bring Food Safety Home: How to Use the WHO 5 Keys to Safer Food* for use in the educational community (educators, students, parents, and the people who prepare the food).

4. SPECIFIC OBJECTIVES

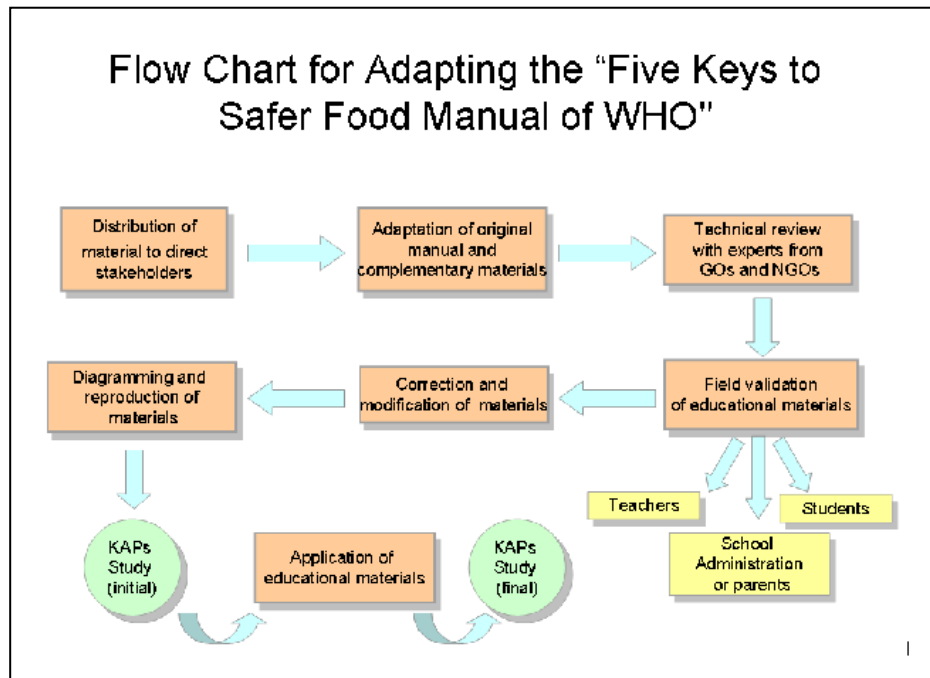
1. Adapt the Manual *Bring Food Safety Home: How to Use the WHO 5 Keys to Safer Food* for use with the educational community, based on the needs of the country and the beneficiary population
2. Evaluate the usefulness of the *Five Keys to Safer Food Manual* to improve the knowledge and skills of students, teachers, and food handlers in food safety
3. Prepare complementary educational materials that can be used nationwide as food safety guides

5. TARGET POPULATION

Primary school children attending urban and rural schools, as well as educators, parents, and persons who prepare school snacks or lunches.

6. METHODOLOGY

The project is coordinated by the Pan American Health Organization (PAHO/WHO) and implemented by the Institute of Nutrition of Central America and Panama (INCAP) in Guatemala and Honduras. The diagram below shows how the process has been adapted in Guatemala.



Stage 1: Raising awareness about the project among direct stakeholders. Presentation of the pilot project and the original WHO manual to different government institutions and international cooperation agencies to elicit a commitment from stakeholders to implementing the project in the country.

Stage 2: Adaptation of the original manual and preparation of support tools. Adapt the information to common practices in the Guatemalan population as a way of ensuring that in the final analysis, a manual or guide is obtained that enables the target group to adopt feasible behavioral changes. Information was provided on appropriate, inexpensive technologies that have been developed and validated in both Guatemala and other Latin American countries.

Complementary materials were also prepared:

- Teacher Activities Manual
- Manual for educators and school administrators
- Promotional poster

Stage 3: Technical review of the manual on contents and complementary educational tools. Meetings were held with representatives from the government as well as different NGOs working in schools to review the materials and obtain comments, suggestions, and inputs for their improvement them prior to validation.

At the same time, the Ministry of Education was requested to undertake a technical and pedagogical review of the adapted materials. This process was backed with Technical Opinion N° 01-2006 of that Ministry. Furthermore, it was requested that 10 rural and urban schools be designated to validate the materials.



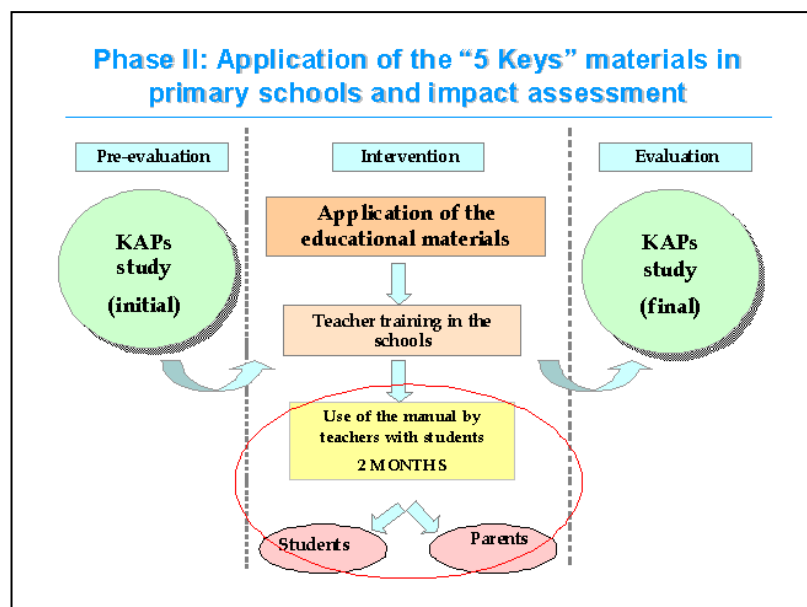
Stage 4: Validation of the materials in urban and rural primary schools in Guatemala. They were field tested with an audience similar to the one that will use these educational materials, in order to determine whether the contents and activities meet the needs of both educators and students; and also, in order to learn whether the contents were sufficient and about their quality and ease of understanding. The materials were validated in urban and rural primary schools in Guatemala.

Stage 5: Modification of the materials. The materials were modified based on the results obtained in the validation; they were then diagrammed and printed for their promotion and use in a sampling of schools.

Stage 6: Use of the materials in urban and rural primary schools in Guatemala. Late 2007 witnessed the launch of Phase II, which corresponds to the implementation phase of the materials, in which a baseline was constructed on knowledge, attitudes, and practices (KAPs) related to hygiene in food handling among students, parents, and educators at four primary schools in the country; this was combined with microbiological testing of the food preparation areas, utensils, and food processed for school lunches.

The purpose was to gather information about the educational community's KAPs with respect to hygiene in food handling prior to the intervention and materials application stage, so that at the end of the project their usefulness in teaching these subjects could be determined.

For the INTERVENTION stage in Phase II, teachers at these four schools are being trained in the contents and application of the Five Keys manuals, so that in eight weeks (two months), they will be able to impart this knowledge to the students, as shown in the figure below.



7. PRINCIPAL RESULTS

- Technical endorsement by the Ministry of Education (Technical Opinion No. 01-2006)
- Dissemination of prevalidated tools and poster, available on the PAHO website and the INCAP website at the following link:
http://www.sica.int/busqueda/busqueda_basica.aspx?idCat=3&idMod=2&IdEnt=29&Pag=5.

- Validation of the 5 Keys materials in 12 urban and rural schools in four departments of Guatemala; reviewed by 127 primary school teachers and tested with 1,389 students, grades 1 to 6
- Forty-one teachers from the four selected schools have been trained in the use of 5 Keys materials.
- Educational tools adapted, validated, and printed, with an electronic version as well, for distribution in Latin America

8. FUTURE ACTIVITIES

- Impact assessment on a sample of schools, obtaining a baseline and a final KAPs study on food safety
- Transfer of the materials and methodology to other countries in the Region
- Publication in English and other languages that have been requested



9. IMPORTANCE OF IMPLEMENTING THE INITIATIVE

Food security is one of the main priorities of the Government of Guatemala; thus, government programs prioritize and protect the right to good nutrition and facilitate the means for ensuring food security in the most vulnerable populations. Food security and food safety are closely linked: according to the definition adopted by the World Food Summit, organized by FAO in June 2002, food security exists when all people at all times have physical and economic access to sufficient, safe, nourishing food to meet their dietary needs and preferences in order to live an active and healthy life. Food security has been achieved when the availability of food is guaranteed, the supply is regular and safe, and all people have access to it.

In another vein, diarrhea is one of the principal public health problems in the majority of developing countries and is a leading cause of infant morbidity and mortality, especially given its association with malnutrition. In Latin America, diarrheal diseases are among the five leading causes of death. The World Health Organization estimates that each year, some 1.3 billion episodes of diarrhea occur in children under 5 in developing countries, with 4 million deaths from acute diarrhea, linked in 50-70% of the cases with dehydration, while hundreds of other children suffer frequent episodes of diarrhea, seriously affecting their nutritional status. According to WHO, 70% of the cases of diarrheal diseases are attributable to the consumption of contaminated food.

In Guatemala, diarrhea is one of the three leading causes of mortality in children under 5, with the country reporting an average of four episodes of diarrhea per year. There is evidence that food contamination and a deficient culture of health are related to increasing outbreaks of diarrhea. In this context, one of the most exhaustive studies was conducted by the Atlanta-based Centers for Disease Control and Prevention (CDC), which found that the main causes of food contamination were: poor personal hygiene, the use of improper refrigeration and cooking temperatures, and the contamination of equipment used in food preparation.

The long-term social and economic impact of deficient food quality and food safety is difficult to measure accurately, but they lead to chronic malnutrition, a particularly acute problem in some of our

countries. Separate consideration should be given to the consequences or costs of malnutrition; clearly, a problem of such magnitude that affects so many people must have repercussions for the country, and we state some here: from the standpoint of health, we know that it increases morbidity and mortality, which is reflected in the growing out-of-pocket expenditure or private spending on health and the growing demand for services at public health facilities; the neuron damage that children suffer in the first two years of life should also be considered. However, it should also be noted that the costs in education are equally high, since a greater number of children are being left back in the early grades of primary school. Finally, there is the adverse effect on the productive capacity of the country, which is directly associated with the higher prevalence of mortality in children under 5 and the lower educational levels attained by the malnourished population, resulting in fewer opportunities for a better-paying job. In short, the cost to the country has been calculated at 24.8 billion quetzals (US\$ 3.1 billion), 11.4% of GDP for the year 2004

In the design of the project, as the strategy for implementing the 5 Keys, it was decided that the schools should be used, considering them not only places for general learning but institutions that promote healthy development, which promotes healthy lifestyles in schoolchildren and the general population in the short and long term.

10. RECOMMENDATIONS FOR COOPERATION AND THE COORDINATION OF ACTIVITIES IN FOOD SAFETY AT THE NATIONAL, SUBREGIONAL, AND REGIONAL LEVEL

National:

- Participation and coordination of the Ministries of Health, Education, and Agriculture, together with the community, in the design and adaptation of healthy lifestyles programs in general and food programs in particular
- Inclusion of the topic in initiatives such as Healthy Schools, Markets, and Municipios; Faces, Voices, and Places; etc.

Subregional and Regional:

- Put the topic of food safety and the promotion of healthy lifestyles on the agenda of subregional forums such as COMISCA, RESSCAD, as well as regional forums
- Promote horizontal cooperation among countries through technical cooperation projects and technical and scientific events