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SINEE CHOTIBORIBOON : MODEL DEVELOPMENT OF SCHOOL LUNCH ACTIVITIES TO IMPROVE IRON STATUS OF PRIMARY SCHOOL STUDENTS IN THE NORTHEAST. THESIS ADVISOR: SUTTILAK SMITASIRI, Ph.D., VALAI INDRAMBARYA, M.A., PRAPAISRI SIRICHAKAWAL, Ph.D., SURAPONG POONSUWAN, M.Ed. 245 p. ISBN 974-663-610-3

The main objective of this intervention research was to develop a model to improve school lunch so as to increase iron status of primary school students. This case study included three major interventions: lunch menu development, weekly iron supplementation and comprehensive nutrition information, education, communication and motivation for teachers, students, and to a certain extent, community members. It was carried out in two schools in Si-sa-ket Province, an intervention and a reference. Intervention activities were carried out for a period of 26 weeks. Pre- and post test design were used to evaluate the effectiveness of the intervention.

Students in the intervention school were randomly assigned into two groups, Group I received developed iron-rich school lunches while Group II received both developed iron-rich school lunches and 60 mg elemental iron supplements weekly. Both intervention groups received comprehensive nutrition information, education, communication, and motivation. Students in the reference school were also randomly assigned into two groups, Group III received only regular school lunches while students in Group IV received regular school lunches and 60 mg elemental iron supplements weekly.

Results of quantitative and qualitative analyses indicated that students in Group II had significantly improve their iron status after intervention (from geometric mean of 51.3 to 72.4 ng/ml). Students in Group IV who had received regular school lunches and weekly iron supplementation also improved their iron status but less than Group II (57.5 to 67.6 ng/ml). Students in Group I who received only the developed iron rich school lunches also showed some improvement (60.3 to 69.2 ng/ml). It was found that energy, macronutrients and iron from the developed iron rich lunches had been improved and maintained at the levels of more than one-third of the recommended daily dietary allowances throughout the intervention. Knowledge, Attitudes and Practices measures indicated the improvement of knowledge, attitudes and practices among students in the intervention. Assessment of students' nutrient intakes also revealed favorable outcomes.

In conclusion, improved school lunch activities as designed in this study could enhance primary school students' iron status. School lunch menu development was important in maintaining good nutrition, especially during dry season. The participatory approach in nutrition information, education, communication and motivation was crucial in improving school lunch activities. Students' knowledge, attitudes and practices concerning healthy food consumption could be improved in a relatively short period. Teachers' positive attitudes towards the school lunch program were found to be critical for their effective actions. A model is proposed for future improvement of school lunch activities to enhance students' iron status in the northeast.