

Actions for the protection and prevention of sustainable healthy complementary feeding in nurseries

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Background

The WHO and UNICEF in the Global Strategy for infant and young children feeding (GS), indicate that the principle actors of society play significant roles in ensuring the rights of children to achieve the highest possible standard of health also through protection, promotion and support, and safe and adequate complementary feeding for infants and young children. The role of children's services is taken up by the United Nations in the "Convention on the Rights of the Child". The WHO and FAO in The Sustainable Healthy Diet, guiding principles (SHD), regarding dietary patterns that promote all dimensions of health and well-being and environmental and social aspects, moreover underline synergies among foods, nutrients present in dietary patterns and their bioavailability, degree of food processing, and their subsequent health impact. The UNICEF Baby-Friendly Community Initiative, involving 42 nurseries, of which 19 public and 23 private, with 1573 enrolled children and a coverage rate of 38% (EU objective 35%) has operated in the municipality of Trieste, since 2015. Beginning August 2022 the project aims were to verify the application of food safety regulations (FSR), recommendation of the GS, SHD and regional nutritional guidelines (RNG) in nursery catering services by the updating of the integrated food safety and nutritional security items to be applied during inspections.

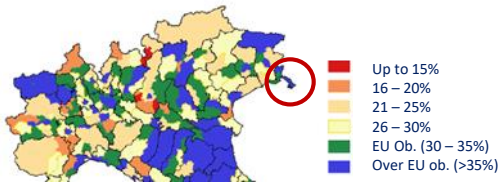


Figure 1. Total coverage rates of integrative services for early childhood, Presidency of the Council of Ministers (2019)

Methods

For the development of the integrated items, the indications contained in several acts were apply, in particular: Reg (EU) 2023/915 on contaminants; Reg (EU) 2017/2158 on acrylamide; COM(2022/C 355/01) and COM(2020/C 199/1) on food safety management systems (FSMS); Law of the Autonomous Region of Friuli Venezia Giulia (RAFVG) n. 20 of 2005 «Integrated educational system of services for early childhood», which includes among the requirements for starting the activity the mandatory dietary table approved by the Health Authority (including menus, weights, products, cooking techniques); RAFVG guidelines for nutrition in nurseries; Regional Prevention Plan (PRP) 2021-2025 of the RAFVG. The updated items were applied to 14 of the 42 verified, carried out by the Local Health Agency of Trieste integrated with Trieste University (ASUGI). 78 food samples of oven-cooked vegetables, meat and fish were taken from 10 nursery kitchens, with a overall production of 1150 meals per day. The University of Trieste has performed over 400 analyses to investigate: potential critical food safety, relating to chemical contamination deriving from the production environment during cooking with

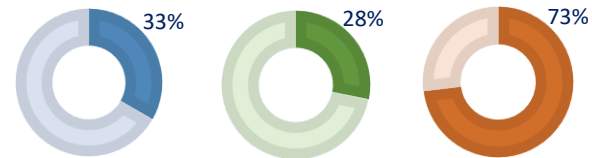


Figure 2. Nurseries verified

Figure 3. Children enrolled in verified nurseries

Figure 4. Production of meals taken from nursery kitchens

the formation of compounds from the Maillard reaction and acrylamide; and nutritional quality, relating to the protective capacity of meals. The outcomes were compared with FSR, literature references and the research results carried out in 2014 and 2015.

Results

Significant differences with community regulations, regional law and with the recommendations of the GS have been verified. At all nurseries the FSMS prepared by food sector operators did not provide for the correct assessment of possible physical, chemical or biological contamination compared to the contamination limits defined by community legislation for the 0 – 2 age group. The GHP / PRP were not in line with the indications of COM(2022/C 355/01) and COM(2020/C 199/1) and did not provide for: a rigorous procurement policy of raw materials, with selection of suppliers and specifications (for example mycotoxin and dioxins content); punctual purchasing, documentation and maintenance procedures for materials in contact with food; specific procedures relating to mitigation measures for process contaminants (acrylamide and/or PAH) in the cooking phase. The training programs for staff responsible for the preparation and/or administration of meals for nurseries did not include specific food safety topics for the protection of the health of infants and young children. Furthermore, in some nurseries the menu was different from the one approved and the procedures for defrosting fish products were not respected. Relevant and systemic corrective actions indicated by FSR, GS and RNG have been implemented to overcome non-compliance. The analyses on nutritional quality performed on plants food samples have shown that the protective compounds have remained similar, and in some cases improved, in comparison to the survey carried out in 2014 and 2015.

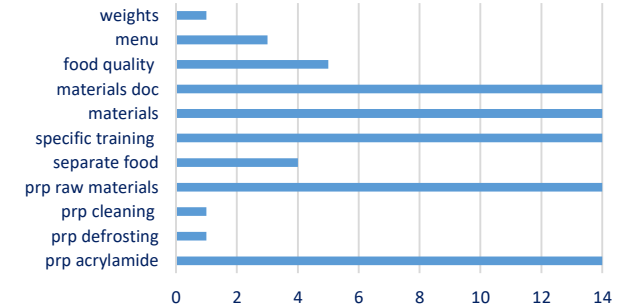


Figure 5. Numbers of non-compliance items

However, in the MF-based oven-cooked preparations, a significant content of Maillard products was highlighted and only some of them showed values above the acceptable limit.

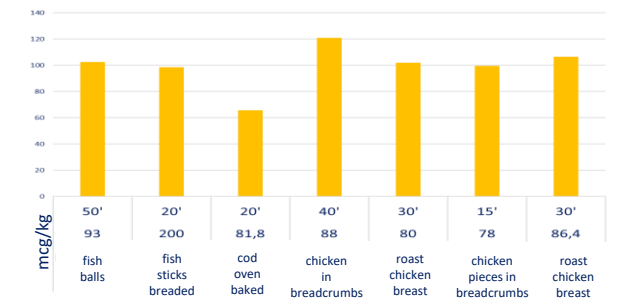


Figure 6. Acrylamide content (mcg/kg) in relation to: cooking times and temperatures

Conclusions

The results of the project highlight the need to further develop inspection activities and invest in the culture of food and nutritional safety dedicated to all actors in early childhood education services: educators, cooks, consultants, parents, and service managers.