

Salt in communal catering: Identifying the main critical control points

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Project Funding: Swiss Federal Office of Public Health. Contract # 08.005904

Introduction

The Swiss Salt Strategy 2008-2012 (1) was developed following a WHO/FAO technical report released in 2003 (2), which recommended reducing salt intake at the population level to 5g/day.

The Catering Sector was defined as one target area for environmental interventions.

Purpose

To investigate Critical Control Points (CCPs) of salt entry in communal catering and suggest practical measures that will contribute to a 16% reduction of salt intake over 4 years among the Swiss population.

Methods

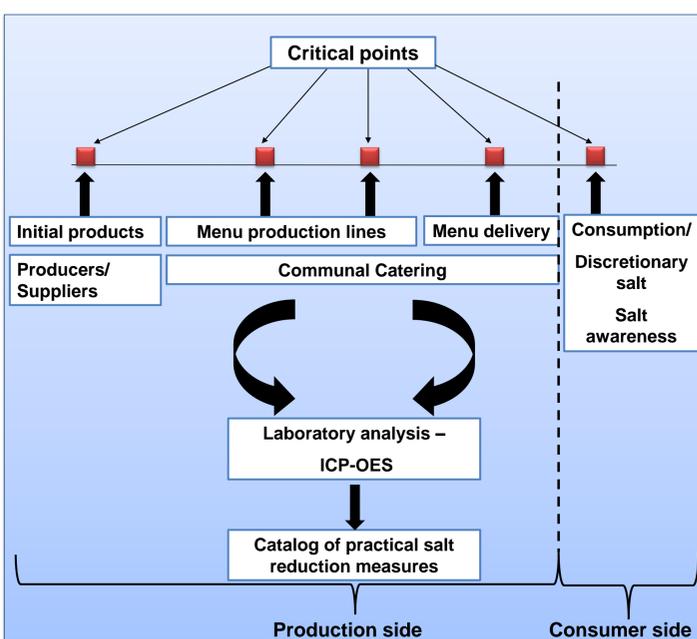
Five communal catering establishments were selected based on the domains Business, Care, and Education and the common catering systems Cook-Serve, Cook-Chill to participate in the current study.

The following procedure was developed, pilot tested and applied in the field (Figure 1):

- Observations to identify CCPs are made at three levels: Baseline products, production lines and service.
- Aliquot sampling (CCPs) of specific dishes (standard and vegetarian menus, soup/bread, and salad buffet) are analyzed in laboratory for sodium content with the ICP-OES* method. The equivalent salt contents were calculated with the stoichiometric factor of 2.54.
- Assessment of salt awareness by a specifically developed questionnaire among subjects taking lunch at the 5 investigated communal catering establishments (N=336, Age (yr): 18-60+, BMI kg/m²: 17.1-40.8) (3).

* Inductively coupled plasma optical emission spectrometry

Figure 1: Study procedure



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Results

The study provided data on salt equivalent (NaCl) intake for a third of daily estimates per menu and menu components in comparison to the long and medium-term targets set by the Swiss Salt Strategy (Figures 2&3).

Results from the main study were comparable to data obtained from the pilot study, with sodium ranging from 3.92 to 11.21 g/menu with traditional combinations considered (i.e. including soup and bread) (Table 1).

Main CCPs identified were baseline products used, menu production and served portion sizes.

Data from the consumer salt awareness questionnaire suggested that consumers were generally well-aware of the salt-health relationship. However, the apparent general lack of interest to receive salt information indicates that the implementation of effective sensitization measures may be a challenging process (Figure 4).

Figure 2: Average salt content in menu components (g NaCl/100g ±SD)

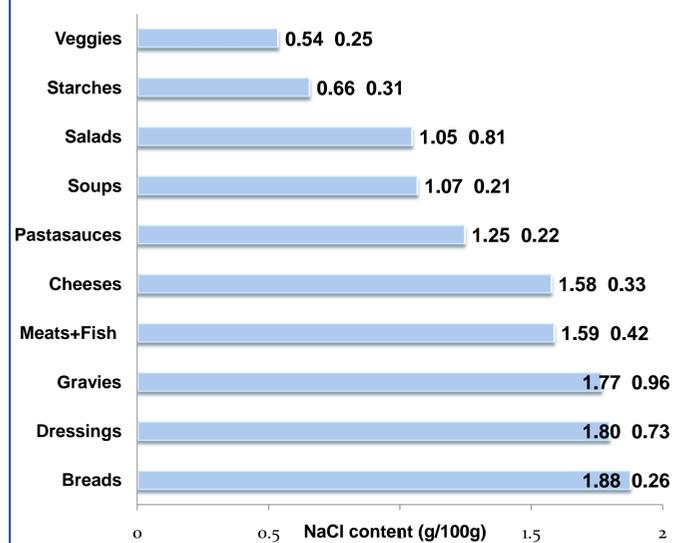


Table 1: Range of salt content per menu type (g NaCl/menu standard portion)

Menu type	Salt content (g/menu std portion)	
	from	to
Main dish (meat or fish) with soup and bread	5.48	11.21
Vegetarian dish with soup and bread	4.12	6.78
Salad plate (free-flow buffet) with soup and bread	3.92	7.38

Discussion

Data from the present study show that salt intake in the participating communal catering establishments was higher than the recommendation per one meal (lunch, one third of daily intake) from the Swiss Salt Strategy.

The mixed-model approach has proved to be an efficient method for recognizing CCPs and determining salt contents. The laboratory method, ICP-OES, brought consistent results.

Practical measures to reduce salt intake are set to be developed together with the kitchen chefs and responsible authorities.

A further step of this study will be to enhance consumers' awareness of the salt-health issue.

Consumers need to be informed about the salt-health relationship in both an efficient and acceptable manner.

Figure 3: Salt content per sample menu (g/standard portion)

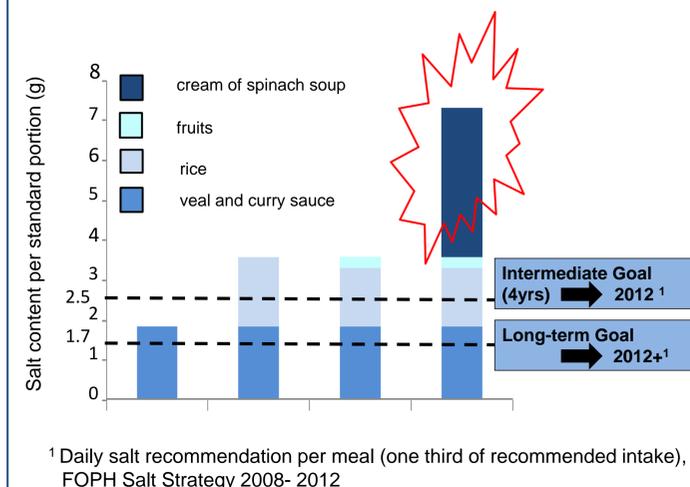
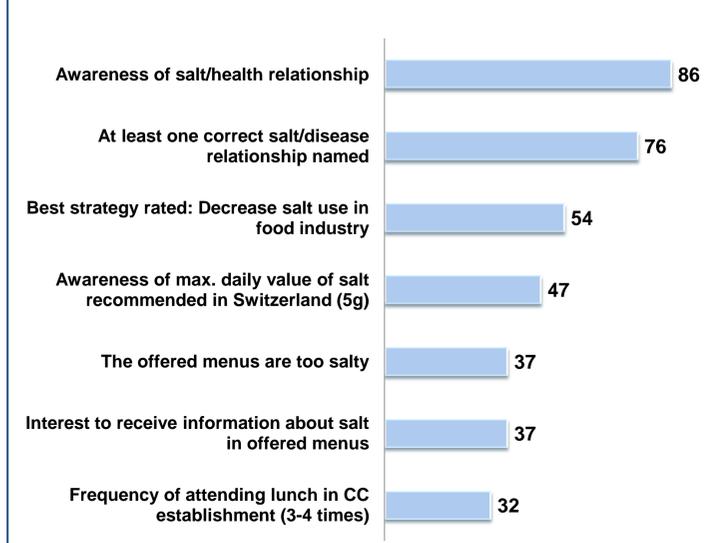


Figure 4: Consumer „Salt Awareness“ most frequent responses (%)



Conclusion

The Catering Sector is a target area to implement promotion strategies for healthful eating, including a moderate use of salt.

Data from this study suggest that consumers' salt intake with lunch contributes largely to a total daily salt intake above the recommended level of 5g/d (4).

Both the menu production and consumers' side should be targets for interventions aiming at promoting awareness of the salt-health relationship.

Literature

- 1) Swiss Salt Strategy. www.bag.admin.ch
- 2) WHO: Report of the joint WHO/FAO Expert Consultation on Diet, Nutrition and the Prevention of Chronic Diseases. Technical Report Series 916, 2003.
- 3) Sadeghi L., Beer-Borst S., Bern University of Applied Sciences, aR&D in Nutrition and Dietetics, 2009.
- 4) Beer-Borst S et al: Eur J Clin Nutr 2009; 63, 155-164.