Consistency in inspection processes of food control officials and efficacy of official controls in restaurants in Finland

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ABSTRACT

We evaluated the consistency and efficacy of inspection processes of 17 Finnish municipal food control units by analyzing inspection reports of 83 restaurants over the 2007—2011 period and by interviewing food business operators. Fifty-six officials of the food control units responded to an electronic questionnaire about their inspection activities. We found several factors related to the food establishment, the food control official and the working unit of the official that can affect the inspection processes and the efficacy of the controls. The use of checklists and templates for inspection reports enhanced the consistency and efficacy of the controls. The templates also reduced the time used for, and increased the quality of, reporting. Time limits for correcting non-compliances had a significant effect on the efficacy of controls.

1. Introduction

Effective national food control systems are essential to protect the health and safety of food consumers (FAO & WHO, 2003). The control systems are largely affected by the skills of the staff that perform the official controls. In addition to the ability to identify potential food safety problems, inspect the premises and carry an overall evaluation of the situation, the food control officials must have a good understanding of the relevant legislation, its obligations for the food business operators (FBOs) and their own power and responsibilities under it (FAO & WHO, 2003). In cases of non-compliance with regulations, the officials have to be able to determine the most appropriate action(s) to ensure the correction of the violation. Vocational training of the officials has an important role both in providing the needed skills and in ensuring that the controls are performed in a consistent manner (EC 882/2004).

Municipal food control authorities in Finland are responsible for official food control in food establishments except for slaughterhouses, which are controlled at the national level (Finnish Food Act 23/2006). The Finnish Food Safety Authority Evira is responsible for the national guidance of the food control regulations, and has

provided several guidelines concerning adequate hygienic conditions, own-checking systems[1] and HACCP-procedures in food businesses. Evira has also published guidelines for actions in official food control, including coercive measures. Despite the guidelines, the Food and Veterinary Office (FVO) of the European Commission has relatively recently observed several deficiencies in the official controls. These deficiencies concern for example the evaluation of the food businesses' HACCP-procedures and taking adequate actions for ensuring the correction of detected non-compliances (FVO, 2012; 2013). A recent study concluded that coercive measures are chosen in Finland especially in those situations for which there is adequate justification for their use (Lundén, 2013).

It has been suggested that instructions and high-quality guidance given by the food control officials during inspections have a major impact on food safety in food establishments (Läikkö-Roto & Nevas, 2014; Newbold, McKeary, Hart, & Hall, 2008). The Finnish Food Act (23/2006) stipulates that the competent authorities shall, along with demanding compliance with legislation, give advice and instructions to the FBOs when needed. The authorities shall also treat their control objects equally and all their actions and

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[1] The own-checking system consists of own-checking programs, their implementation, and the documentation of the own-checks. The law requires applying the system in food establishments.

measures will have to be impartial and proportional to the aim pursued (Finnish Administrative Procedure Act, 6.6.2003/434). Inconsistency in official controls can cause unequal economic cost burdens between food businesses for example through differing requirements. Differing requirements may also complicate the planning of operations in the establishments. Furthermore, the consistency of the controls is essential for the open publication of the inspection results (Griffith, 2005).

The aim of this study was to analyze the consistency of inspection processes[2] and actions taken by Finnish municipal food control officials, and to evaluate the efficacy of the controls. The study was conducted through extensive questionnaires and analysis of inspection reports. The results may be used in enhancing the consistency and the efficacy of the official food controls.

2. Material and methods

Of the 79 municipal food control units existing in Finland in 2011, 17 units (21.5%) were chosen for the study based on their location so that the sample covered the whole country. The sample was weighed based on the population density. The heads of the units were asked to deliver the prepared electronic questionnaire about official food control for the food control officials who executed restaurant inspections in their units in November 2011. Inspection reports of 83 restaurants operating within the control areas of the units were collected for a five-year period (2007–2011). This collection took place after the random selection from lists provided by the units and with the agreement of the manager/proprietors. A total of 177 managers/proprietors were contacted to arrange for the participating restaurants, and those that gave their agreement were interviewed about the official controls between October 2011 and May 2012 (partly reported in Läikkö-Roto & Nevas, 2014). Background information on the food control units was obtained from the heads of the units in interviews given between October 2011 and March 2012.

2.1. Electronic questionnaires

The food control officials were asked about their gender and working experience in official food control, and the number of food establishments for which they were responsible. The distribution of the officials' time usage during inspections was asked with specific questions. Variations in the time usage between inspections of different establishments were studied by using four-point Likert scales. The effects of inspection history were studied by presenting statements about the possible impacts, using both four-point Likert scales and dichotomous scales for responses. Variations of the officials' personal approach on inspections and the necessity to enforce the corrective measures were evaluated by four-point Likert scales. Answers to questions about inspection reports were evaluated on five-point Likert scales. A scale ranging from 0 to 10 was used for the officials' views on the significance of legislative requirements for food safety. Frequencies for setting time limits and verifying the implementation of required corrections were studied on five-point Likert scales. The officials were presented with four hypothetical situations and asked to choose the most suitable action for each situation. They were also given nine descriptions of imaginary establishments and asked whether the described conditions, facilities or equipment could be considered adequate. Perceptions about the uniformity of official food control

were studied on five-point Likert scales. The officials were asked to name the three most important training areas for improving the quality and efficacy of their controls from a list of given options. The considered effects of presenting inspection results openly to customers of food businesses were evaluated by using five-point Likert scales.

2.2. Analysis of inspection reports

Inspected items were divided into 26 categories to evaluate the inspection reports (Table 1). These categories were also used for classifying observed non-compliances and demands for corrections. Five items (prevention of cross contamination, temperature control, hand washing facilities, cleanability and cleanliness of food contact surfaces and personal hygiene of staff) were determined as being critical because they were significant impact factors for food safety (FDA, 2009; Sharkey, Alam, Mase, & Ying, 2012). The numbers of different categories of inspected items, observed non-compliances and demands for corrections were calculated for each inspection report. The numbers of set time limits for correcting the non-compliances, the length of time allowed for the corrections to be made, and the numbers of repeated demands due to inadequate correction of the non-compliances were calculated. Verification of corrective actions was analyzed by calculating the number of the verification activities and the time from the observation of the non-compliances until the verification activities. Variables were formed to describe the extent to which corrections of non-compliances in the restaurants were carried out based on documented verification.

2.3. FBO interviews

The FBOs evaluated the food control officials' work with Finnish school grades (4 = fail, 5 = passable, 6 = moderate, 7 = acceptable, 8 = good, 9 = very good, 10 = excellent). They also evaluated the impact of implementing official food controls for their restaurants' hygiene with given answer options.

2.4. Statistical analysis

All data were processed using SPSS statistical software (SPSS Statistics 21.0, IBM, USA). The data obtained through electronic questionnaires were stratified according to the officials' gender and working experience, and on the number of food control personnel in the units. The data were also stratified for the 17 control units. The data obtained for the analysis of the inspection reports were stratified according to the following: the number of inspections performed in the restaurants during the study period, the use of templates for writing inspection reports on the respective inspections, and on the number of food control personnel in the units.

Normality of the distributions was tested by the Kolmogorov–Smirnov test. The equality of means in the groups was analyzed by one-way ANOVA t-test when the compared distributions were found to be normal. Kruskal–Wallis Test and Mann–Whitney U-Test were used for comparison of the groups when non-parametric variables were included in the analysis, and the two-tailed Pearson Chi–Square test were used to analyze categorical variables. Correlations between continuous variables were examined by Pearson's correlation with two-tailed significance. The Spearman's rank order correlation was used when discrete variables were included in the analysis. All "Don't know" answers were excluded from the analysis, and statistical significance was accepted with a confidence level of 95%.

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[2] Inspections usually involve a number of elements of audits in Finnish food control system.