

Evaluation of initial and periodic examinations of food handlers in military facilities

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Abstract

Food handlers are an important factor for food-borne diseases in the military units where food is prepared and served by a single responsible subunit. To prevent food-borne diseases there is laboratory and hospital based periodical examination procedure. But it is not effective. For example; 153,012 of 417,163 chest radiograms, 107,543 of 1,087,056 urinalyses, and 198,135 of 336,314 outpatient examination for infectious diseases were for periodical examination but just only 3148, 318, and 7011 are positive respectively. Based on our findings current evaluation procedure of food handler in Turkish Armed Forces should be improved. A new procedure that would make the periodic examinations more effective, lowers the laboratory costs, and lowers the workload of the military hospitals was proposed.

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1. Background

Infectious diseases, which have the highest risk of emerging at places of mass living, are those that are infected via digestive system. Since these places are the places of living where food is prepared and consumed en masse, they are convenient social circumstances where food-borne infections may appear. From this viewpoint, it is effective in preventing most of food-borne diseases that safe food handling practices must be used in supply, preparation and presentation of food and the handlers must be healthy. Food handlers were identified as the source of infection in food-borne diseases in studies conducted in various countries and for different types of microorganisms (al-Lahham, Abu-

Saud, & Shehabi, 1990; Bonner, Foley, Wall, & Fitzgerald, 2001; Daniels et al., 2002; Guzewich & Ross, 1999; Levine, Smart, Archer, Bean, & Tauxe, 1991; Faustini et al., 1998; Lin et al., 1988; Luthi, Wall, Evans, Adak, & Caul, 1996; Olsen et al., 2001; Parashar et al., 1998; Quick, Paugh, Addiss, Kobayashi, & Baron, 1992; Reilly, 1998; Shewmake & Dillon, 1998; Viedma Gil de Vergara, Revuelta, & Majem, 2000). Asymptomatic food handlers in particular may be an important source in food-borne infections (Dryden, Keyworth, Gabb, & Stein, 1994; Guzewich & Ross, 1999; Ollinger-Snyder & Matthews, 1996; Parashar et al., 1998; Patterson, Hutchings, & Palmer, 1993). When these matters are considered, the food-wise hygiene of persons working at facilities of food preparation and presentation, their training on personal hygiene and environmental hygiene, and monitoring their medical status in respect of food-borne diseases are highly important.

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The Public Health Law and the Regulation on Food Production and Sales Points have arranged practices in this regard in Turkey. This legislation requires that persons working in food services have to go through an examination every three months and obtain a report indicating that they may work in such services.

Since the military troops are places where people live together continuously in the same environment, and food is prepared and presented by a single responsible subunit, they run a high risk for food-borne infections. Therefore, TAF Infection Control Instruction states in detail how the health checks of the food handlers should be conducted, and which laboratory tests should be done in such checks. Accordingly all the personnel working in places of food production and distribution obtain prior to commencement of service a report from a hospital which has an infections specialist, and after commencing the service are subjected to medical examination once in fifteen days by the troops physician. Furthermore, the laboratory investigations and specialist examinations conducted in the initial examination are repeated every three months in the military hospital, and a decision is rendered on whether they may continue food handling task or not. The laboratory investigations conducted pursuant to the Instruction are as follows:

- (1) Radiological investigations: chest radiogram.
- (2) Biochemical investigations: white blood cell, haemoglobin, haematocrit, sedimentation rate, and urinary protein, blood glucose, bilirubin, blood microscopy.
- (3) Microbiological investigations: faecal culture, parasites and parasitic spawns in faeces, nasal and pharyngeal swab culture, and HBsAg test.

No assessment has yet been made to determine the effectiveness of the practices started by the TAF Infections Control Instruction issued in 1989. Further, no assessment has been made on the workload imposed by such practice on the military hospitals of TAF. It has been assessed that the present practice based on laboratory investigations results in impairment of practices on food hygiene, personal hygiene and environmental hygiene, which have essential roles in healthy food production process and in preventing food-borne diseases. Due to these three reasons, it has been aimed to assess the current practices and if necessary to design a new procedure.

2. Materials and methods

A cross sectional study was designed to evaluate the case detection proportions of the examinations conducted in military hospitals for the personnel working in units of food service in military units. The study in-

cluded 36 military hospitals of Turkish Armed Forces (TAF) and the data for these hospitals were collected through passive surveillance using the periodic reports of hospitals. The data for the years of 2000–2001 were used in the context of the study.

As laboratory investigations, the numbers of full blood counts, urinalyses, chest radiograms and pharyngeal swab cultures and faecal analyses were evaluated. Also, the outpatient examinations of infection clinics were compiled because an important part of the workload of such clinics consisted of outpatient examinations. Data were collected as how many of the said investigations were requested for all purposes in the military hospitals, what portion of them were requested for periodic examinations of food handlers, and how many positive case detections were scored in those investigations requested for periodic examinations.

In blood counts and urine analyses, the existence of any irregularity, which might connote any infection according to the reference values of laboratory, was considered as positive outcome. Breeding in pharyngeal culture, any abnormality in urinalysis and breeding in culture were assessed as positive outcome. The radiology specialist of the hospital where investigation is held evaluates the chest radiograms. In chest radiograms, any pathology, which are found not normal by the radiology specialist and may connote infection were assessed as positive outcomes. The outpatient examinations for infectious diseases are conducted by infectious diseases specialists (if not present, internal diseases specialist). Here too, the symptoms and findings, which lead to a diagnosis of infection by the specialist or necessitate further investigations, were assessed as positive outcomes.

The data obtained from the military hospitals were merged in Microsoft Excel 2000 software. The numbers and percentages were calculated for all hospitals for total investigations and infectious diseases outpatient examinations, laboratory investigations for periodic examination purposes and positive outcomes from the laboratory investigations for periodic examination purposes.

3. Results

When collecting the results of 36 military hospital regarding periodic examinations of food handlers, data from 33 hospitals were obtained for the year of 2000 however data from 3 hospitals could not be obtained. For the year of 2001, data from all 36 hospitals were obtained. For two years in the military hospitals where data were obtained, the following portions of the total numbers were conducted for periodic examination purposes: 153,012 of 417,163 chest radiograms, 134,000 of 3,374,815 full blood counts, 107,543 of 1,087,056 urinal-

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