

La Timone Hospital laboratory, these cases would not have been identified: the Sentinelles network had not detected any case for the first half of 2003.

Considering the decrease of the number of cases reported by the sentinel GPs during previous years and the fact that the positive predictive value of a clinical case definition is poor, the Sentinelles network cannot identify measles residual transmission areas and does not allow us to know the proportion of measles cases among the suspected cases. Thus, a low proportion of real measles cases can be expected in patients with febrile rash symptoms. This proportion has been estimated in the United Kingdom as 3%.

The Italian outbreak in Campania during 2002 was predominantly detected by the national paediatric surveillance system (4 times more sensitive than mandatory notification) but data were only obtained from children under 15 years of age, and the extent of the outbreak in adolescents and adults was probably underestimated [4]. In Switzerland, the increase in measles cases during 2003 was detected by the mandatory notification system and not by the sentinel surveillance system [5]. In 2001, only 16 of 19 countries in Europe had a mandatory notification system for measles, and some countries had a sentinel surveillance system in addition to this [10].

France needs to reach the WHO objective of measles elimination by 2010 [3]. The surveillance tools must be those already used in the countries that are furthest advanced in the elimination process: exhaustive notification; wide clinical definition to obtain a high sensitivity and to detect all suspected cases; laboratory confirmation to improve specificity and only detect the real cases; strain determination to trace their origin; vaccine coverage follow-up for each dose; and estimation of the proportion of susceptible population by modelling or serological studies [8]. To reach this goal, the Direction Générale de la Santé has nominated a working group to be in charge of proposing a national plan to interrupt the indigenous measles transmission in France.

ORIGINAL ARTICLES

Outbreak report

COMMUNICABLE DISEASE CONTROL IN A MIGRANT SEASONAL WORKERS POPULATION: A CASE STUDY IN NORWAY

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Reliable data on the health status of migrant seasonal workers in Europe is scarce. Access to public health care for this population depends on national regulations, and their legal status in host countries. In this manuscript we describe a case study of a salmonellosis outbreak that occurred in Norway, and highlight the difficulties encountered in applying control measures in a population of seasonal migrant farm workers. Surveillance and control of infectious diseases need to be supported by legislation which makes implementation of control measures possible. Efforts have been made to improve the rights for migrants in Europe with regard to healthcare, but seasonal migrant workers still remain largely outsiders where these measures are concerned. Special attention should be given to this disadvantaged group in terms of social rights and healthcare. Preparedness plans should be improved to deal with contagious pathogens involving the seasonal migrant population.

Euro Surveill 2005;10(3):48-50 Published online Mar 2005

Key words: Agricultural workers, communicable diseases, health services accessibility, international migration, seasonal workers

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Acknowledgements

We wish to thank all the organisations and persons who contributed to the investigations : Health Authorities (Directions départementales des affaires sanitaires et sociales - Ddass) of Alpes-de-Haute-Provence, Bouches-du-Rhône and Vaucluse. Medical practitioners and laboratories of hospitals, private laboratories of Medical Biology, MCH and school medical services.

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Introduction

Seasonal migrant farm-workers (SMFW) all over the world travel frequently and over significant distances to secure their employment. The transient nature of their employment, migration in and out of countries, and the desire by some to avoid contact with governmental agencies, makes the exact number of SMFW difficult to determine [1]. The number of SMFW in Europe is believed to be substantial, but few data are available [2].

In many cases the SMFW and local populations differ with regard to nutrition, language, family structure, religion and health. Epidemiological studies of the health of SMFW are scarce, although some public health concerns have been identified [3,4]. Seasonal migrant farm-workers often come from countries that are poorer than the countries to where they travel for work, and these countries often have different disease epidemiology. Diseases, which can be endemic in the SMFW countries of origin, may be unusual and cause a lot of attention in the new, host countries. This can cause concern in the local communities employing SMFW. A substantial number of SMFW are never registered as employees, and therefore do not benefit from sick-leave in case of illness. They may feel forced to work even when ill. Seasonal migrant farm workers have been implicated in the contamination of produce at source, or hypothesised to be the source of contamination. [5-7].

Every summer and early autumn, more than 15 000 SMFW come

to Norway to harvest fruit, vegetables and berries [8]. This official figure underestimates the real number of SMFW in Norway, because many are not officially registered. Lack of recommendations on how to handle outbreaks of communicable foodborne disease among these people poses a problem for the local health authorities. The majority of the workers are from Poland (62%), Lithuania (20%), Latvia (5%), Estonia (2%), Slovakia (2%) and Ukraine (2%).

The aim of this paper is to describe an imported and self-limited salmonellosis outbreak among SMFW and highlight the social consequences and difficulties encountered in the investigation.

Description of the outbreak

On 12 July 2002, two cases of *Salmonella* Enteritidis infection were reported to the Norwegian Institute of Public Health (NIPH). The two patients were part of a group of 14 Polish strawberry pickers who had come from Poland to Norway on the 1st of July. Five days after arrival, two female workers had symptoms of gastroenteritis, mainly diarrhoea without fever. After two days, their condition had not improved and they consulted the local hospital where they were hospitalised and diagnosed with *Salmonella* Enteritidis infection. The patients received symptomatic treatment and were discharged from the hospital after two days.

Investigations

Investigation of the outbreak was undertaken by the Local Food Authorities (LFA) and the Public Health Officer (PHO), assisted by epidemiologists from the NIPH. The investigation was limited and there were problems with, language, collaboration and social consequences of the outbreak. To try to find the source of the infection, food histories were collected and the premises inspected.

Findings

The farmer who employed the Polish SMFW provided them with basic lodging. Toilets and bathrooms were available on the farm, but the only toilet facilities available to workers in the fields were pit latrines without running water, soap or towels. The investigation revealed that the group of workers had brought with them fresh meat and eggs from Poland, and had cooked their own meals. The workers had only eaten food that they had brought with them. Two days before the onset of symptoms, they had eaten a meal based on lightly cooked eggs which had been stored at room temperature for some hours prior to consumption. Based on the food histories, it was suggested that this meal was the most probable source of the outbreak. No eggs were left over for analysis.

Media coverage

Even though this outbreak was very limited in size, there was extensive coverage in the local media. In Norway, infections with *Salmonella* Enteritidis are mainly contracted abroad (90 % of cases), and the local press angled their stories in a way that heightened concern about SMFW and introduction of pathogens into Norway. As a result of the scare of *Salmonella* spreading in the community, concern about possible spread of infection to the strawberries arose, and consequently the wholesale dealer no longer wanted to purchase strawberries from the farm involved.

Control measures

The substantial coverage in the local media, and lack of recommendations on how to handle the situation from the central authorities, led to the implementation of initial control measures, some of which were not very rational and without much purpose.

Basic hygiene recommendations were given and providing water and soap in the field was recommended. The two symptomatic cases were initially asked to stay away from work and limit contact with their co-workers. They were moved to a separate caravan and were not allowed to use the toilet facilities used by the other workers. They were offered the use of the stable as a toilet with possible contamination of this environment as a result. Contrary to normal procedures in cases of salmonellosis among workers in the food industry, all SMFW on

the farm were screened for salmonellosis. Two asymptomatic carriers were identified. The national reference laboratory reported that all four cases had *Salmonella* Enteritidis phage type 4, and it is likely that the source of infection was the same for the four cases.

Outcome

On 22 July, two epidemiologists from NIPH were sent to the community to assist the PHO. The objectives were to investigate possible sources of contamination, to ensure that all relevant public health measures were taken, to assist the local health authorities with handling the press, and to collaborate with the LFA in evaluating the public health risk connected with consumption of already harvested berries. When epidemiologists from the NIPH arrived, all the workers from the group concerned had left, escaping a situation that had become too complicated. After leaving the farm, the group of workers tried to find work on neighbouring farms, without success. It is likely that they then tried to find work in other parts of the country. There is no legal requirement for workers to inform employers that they could potentially be asymptomatic carriers of *Salmonella*, and no effort was made to trace the group. No other case of gastroenteritis was reported in this community in the relevant period of time.

Discussion

Salmonella, food industry and labour rights

Foodborne disease caused by non-typhoid *Salmonella* is an increasing public health problem worldwide [9]. In order to decrease the incidence of human foodborne salmonellosis, various control measures have been implemented to hinder introduction and multiplication of *Salmonella* in the food chain. In the Norwegian food industry, workers who have diarrhoea are not allowed to work as normal while ill, but are either allocated to duties which do not include direct contact with food or stay away from work on sick leave. For specific pathogens like *Salmonella*, they may not return to work until stool samples are negative with regard to carriage of the pathogen.

According to the Norwegian social security law, all those who have permission to work are covered by the National Insurance Fund [10]. Provided SMFW have a work permit, they have the right to sickness benefit after two weeks of work. Without a work permit, no sickness benefit is obtained, but workers still have the right to necessary health care according to the Communicable Disease Control Law and the Law on Municipal Health Care Services.

If the health authorities prohibit work because of danger of spread of infections, sickness benefit is paid on the same conditions that apply if the employee is ill. The workers' rights in such cases are covered by laws and regulations of employment, and the workers receive their salary until the public health authorities consider it safe to permit them to return to work.

Such rights do not usually apply for SMFW, who often work on a piece-rate and on short-term contracts. In this outbreak, the workers had work permits but had not yet worked for the compulsory two weeks. Therefore, they had no right to sickness benefit, which could have helped control measures and prevented them from moving away.

The financial consequences of not being allowed to work due to illness are severe. Because travelling to Norway is a big investment in itself, SMFW would probably try to stay in the country even if ill, in order to recover their costs, or even simply to be able to afford to return home. Basic food items in Norway are more expensive than in the rest of Europe, particularly central and eastern Europe, so bringing food from home is one way to save money. Importing fresh products from Poland was illegal when this outbreak occurred, but nevertheless took place. This 'import' of food increases the risk of food contamination because of lack of control and sub-standard conservation procedures.

The absence of social benefits for seasonal workers without permission to work, and only partial access to social benefits while legally employed, can be supported by strong economic arguments.

However, difficult situations arise when public health authorities apply control measures to prevent the spread of disease and thereby put migrant workers in an impossible financial situation.

Control measures

Measures implemented during this outbreak, such as isolation of symptomatic workers and screening of asymptomatic workers, were not in accordance with recommendations by the national public health authorities. They were mainly consequences of external pressures on local authorities under pressure from the mass media to make quick decisions, relatively poor collaboration from the employing farmer, who was afraid of losing his strawberry harvest, and incorrect estimation of the risk of cross-contamination between workers.

Basic access to water for washing hands in the fields was unavailable. Other outbreaks described in the literature have linked bad hygiene practice and possible contamination of food products during harvest to the spread of infection [11-13]

Recommendations

Provision of sanitary facilities for workers could decrease the potential risk for direct or indirect contamination of berries.

This investigation highlighted the poor knowledge of migrant workers' rights among the different public agencies involved. Efforts should be made to disseminate this information to officials and beneficiaries.

The migrant workers themselves should not be blamed for their role in the possible spread of infectious diseases. Surveillance and control of infectious diseases has to be supported by laws that make implementation of control measures possible. Efforts are being made to improve the rights for migrants in Europe with regard to health, especially through the revised European social charter from 1996 [14]. However, seasonal migrant workers still remain largely uncovered by these measures.

Special attention should be given to SMFW who are a disadvantaged group in terms of social rights and healthcare in Europe [1].

Concerns about methodological difficulties in epidemiological studies of seasonal migrant populations might have dissuaded researchers from conducting studies. However, although difficulties might occur due to the mobile nature of these populations, more studies should be encouraged, in particular in the field of communicable diseases [15].

In this particular outbreak, *Salmonella* Enteritidis infection was not considered a major public health risk. However, preparedness plans

should be improved to deal with more contagious and threatening pathogens involving seasonal migrant populations.

Acknowledgements

We thank Ragnhild Seip for her help in collecting information on health regulation in Norway and the National Reference Laboratory for performing the phage typing on the *Salmonella* strains. The authors gratefully acknowledge the thoughtful comments of Dr Peter Bilton, Angela Rose and Dr Tore Tollersrud on the manuscript.

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