

Response to heat waves, in a municipality in the North of Portugal

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The negative effects of heat waves on health have been described. The Portuguese Health Ministry has developed a contingency plan to be executed by health services, with the cooperation of other institutions. Following those central guidelines, regional and municipal contingency plans were set up. This paper describes the activities that took place in 2008, in a municipality of the North of Portugal, preparing and implementing the contingency plan for heat waves. During the summer of 2008 the temperature has not been sustainably high to cause major problems; the “yellow alert” activities were triggered only for 3 days. Though the impact of the intervention has not been assessed, the authors believe that these “calm” years are important not to lose memory of past consequences of heat waves and to maintain logistic capacities and know how.

Keywords: heat waves; contingency plans; health services.

1. Introduction

In Portugal, the negative effect of heat waves (HW) on health, namely on mortality, has been documented in 1981, 1991 and 2003 (Falcão, Castro e Falcão, 1988; Garcia, Nogueira e Falcão, 1999; Paixão e Nogueira, 2003; Nogueira *et al.*, 2005). In 2004, a contingency plan (CP) was developed by the Directorate-General of Health (Portugal. Ministério da Saúde. DGS, 2004a; 2004b) to be implemented by health services with the cooperation of other institutions. Since then, CPs have been updated every year. In 2008, the Directorate-General of Health (DGH) issued the national guidelines for a CP to be implemented between 15 May and 30 September, by the regional and local National Health Service (NHS) units (Portugal. Ministério da Saúde. DGS, 2008); three “alert levels” were defined: green, yellow and red. The criteria to define the level of alert, by district, on a daily basis, were described, and included the “ÍCARO” index, developed by the National Institute of Health and previously published (Nogueira *et al.*, 2005).

There are five health regions in Portugal (not including the Atlantic Islands). The Northern Region, where we are located, includes 5 districts. The regional public health department issued a regional CP (Portugal. Ministério da Saúde. Administração Regional de Saúde do Norte, 2008) establishing the type of activity to be included in



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each of the three alert levels of the CP to be setup and executed by each local health authority (LHA). Our LHA covers the population and area of one municipality (Vila Nova de Famalicão), with a population around 130,000 inhabitants, in the district of Braga (850,000 inhabitants). We have written and executed a contingency plan (LHA at the municipal level). We describe here the 2008 activities carried on during the preparatory phase and each of the alert levels: green, yellow and red.

2. Preparation

- Initial meetings were held with the LHA the head nurse of the local health centre (LHC) and the local social security (LSS) staff member specifically appointed for the heat waves CP;
- The LHC and LSS staff made a census (names, addresses and telephone numbers) of elderly people living alone and/or in vulnerable health conditions.
- Private and public institutions caring for the elderly and very young children (below 3 years of age) were identified and listed.
- Leaflets with information on the negative effect of heat waves on health and recommended preventive measures were sent to all NHS units and *Juntas de Freguesia* (local boroughs, which are the smallest administrative elected bodies of the Portuguese administrative organization – in our municipality there are 49 of such local boroughs).
- The information in the leaflets was also transmitted by the local press and the two local radios.
- A big meeting was conducted with all entities potentially involved with activities during heat waves alert levels “yellow” and “red”: nurses and SS staff in charge of home visiting activities, representatives from 14 institutions caring for the elderly and/or very young children (below 3 years of age), 2 staff members of the Health Environment Unit (HEU) of the LHA and a representative of the local Civil Protection Service. In that meeting, the medical aspects of heat waves were presented by a medical doctor, issues related with water quality control were presented by the staff of HEU and finally the 2008 LHA health waves contingency plan was presented and discussed; special emphasis was put in the discussion of planned activities and “actors” during yellow and red alert periods.

Leaflets and posters were distributed to all entities, to be publicised.

3. Green level

Every day, from May 15 to September 30, the local health authority checked the map of the DGH internet site, to know the “colour” of the alert level attributed to the district of Braga. Furthermore, the regional public health department sent a daily mail with the alert level for each of the 5 districts of the Northern Region. After initial transmitting of information by local press and radios, the health waves issue was not tackled in media during the “green” days.

4. Yellow level

The situation of yellow alert occurred in the district of Braga, from the 17th to the 19th of July. Following the CP instructions, in the morning of the 17th of July, the LHA on permanent duty “alerted” by telephone the following entities/staff: the head of the emergency service of the local hospital, the doctor on duty (for urgent situations — consulta aberta) in the LHC, the two local radios, the head nurse of the LHC, the local Civil Protection and social security services. In July 20 and 21, all these entities/staff members were informed by the LHA that alert level was back on the “green”. During the 3 days of yellow alert, many activities were carried on by the following institutions/staff:

Local health centre (part of the NHS). Fifty one elderly people were visited in their homes by nurses; their health status was checked and advice was given, with special emphasis on avoiding heat exposure and drinking water; not a single danger situation was spotted. Twenty three elderly people were contacted by telephone, because it was not logistically possible to visit all listed people; in one case a neighbour was contacted. Five institutions with elderly domiciliary support activities were contacted; we do not know the details of their interventions on those days. The nurses from the School Health Program contacted 29 institutions which care for very young children (nurseries/kindergarten).

Local radios transmitted pre recorded spots and information on preventive measures, warning the population that the situation was “yellow alert”.

Social security staff visited elderly people in their homes and some institutions but we do not know detailed numbers on those activities.

Fortunately, the “red” level of alert was never reached in Portugal, in 2008.

5. Preliminary assessment

This was not a “hot summer”. We only had 3 days in yellow level but in 2007 there were none, while yellow alert had been triggered 4 times in the summer of 2006.

Very few deaths occurred in the three days of the heath wave and in the three subsequent days (20 to 21 July). Numbers are too small to make possible a valid statistical analysis. Nevertheless, there seem not to have been an excess of mortality (*Table I*). Meanwhile data analysis at national level has shown numbers of deaths below expected levels in the summer of 2008 (Nogueira, 2008).

Checking the death certificates of the 9 deaths recorded between the 17th and the 22nd of July 2008, all have occurred in people aged 65+ (2 males and 7 females). The causes of death (main cause) recorded were: undetermined (*n* = 3), congestive heart failure (*n* = 2), stroke (*n* = 1), pneumonia (*n* = 1), renal failure (*n* = 1) and infection (*n* = 1). This information cannot confirm or reject causal relations with the heat wave, but observed causes were very similar to those recorded in the equivalent period 2003-2007.

On the days 24, 28 and 29th of July 2008, 130 people attending a local health centre were interviewed about their behaviour during the heat wave and questioned on their sources of information. Thirty eight were males and 92 females; they were aged 19 to 74 with mean age of 49 years SD (17.6). Ninety six (74%) of those interviewed had known about the health wave alert. Most of them were alerted by a national television and/or radio station. Only 16.2% of all interviewed people had heard the health wave messages on the local radios.

It is methodologically difficult to assess the impact of this type of intervention both on behaviours and on

health status. How useful was it to undertake this special surveillance-response plan? We should consider what might have happened if no activities had been implemented (Gonçalves *et al.*, 2005). Elsewhere we will describe in detail the results of the questionnaire, and, as years go by, we may accumulate data needed to contribute to the assessment of these interventions; to comply with the paradigm of “evidence-based public health” assessment is essential (Brownson *et al.*, 2003; Mastrangelo *et al.*, 2006). Meanwhile these “calm” years are important not to loose memory of past consequences of heath waves and, to keep surveillance and response “alive” (Nogueira, 2008).

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Table I
Number of deaths in the municipality of Vila Nova de Famalicão during the health wave of 2008, compared with the daily average number on previous years

Year	July 17	July 18	July 19	July 20	July 21	July 22
2008	2	0	3	1	1	2
2003-2007 average	1.5	1.5	2.5	2.2	1.3	1.2

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□ Resumo

EXECUÇÃO DE PLANO DE CONTINGÊNCIA, EM RESPOSTA A UMA ONDA DE CALOR, NUM MUNICÍPIO DO NORTE DE PORTUGAL.

São conhecidos os potenciais efeitos negativos para a saúde humana das ondas de calor. O Ministério da Saúde português estabeleceu um plano de contingência que contém linhas de orientação para a elaboração e execução de planos de contingência em resposta a ondas de calor, aos níveis regional e local. Aqui se faz uma breve descrição das actividades preparatórias e da execução do plano de contingência, pelos serviços de saúde de Vila Nova de Famalicão, durante o Verão de 2008. Apesar de apenas terem ocorrido 3 dias de «alerta amarelo» é importante manter a logística e a capacidade humana (profissionais de saúde) de intervenção nestes «anos calmos», não esquecendo as consequências nefastas de anteriores ondas de calor.

Palavras-chave: ondas de calor; planos de contingência; serviços de saúde.