

## النشرة الوبائية السعودية

### تصدرها وزارة الصحة

الوكالة المساعدة للطب الوقائي وبرنامج الوبائيات الحقلية  
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## Behavioral risk factors for pilgrims to Makkah, 1997

For five days every year, more than two million Muslims gather in a 10-square-kilometer area to perform the rites of the Hajj, the Islamic pilgrimage to Makkah. These pilgrims (Hajjees) encompass many diverse nationalities (more than 140 countries) with different languages, habits and lifestyles. The disease profile of Hajjees varies according to their home countries, economic and educational levels, age distribution (middle age or the elderly), knowledge of and attitudes toward personal hygiene, and underlying chronic diseases. There are histories of disasters and outbreaks of infectious disease during Hajj that could be in part attributed to unhealthy behavior of Hajjees.

To reduce the occurrence of serious Hajj-related illnesses, the Saudi Ministry of Health (MOH) has developed a number of programs to modify some risky behaviors of Hajjees. In 1997, we assessed behavioral risk factors (BRF) for several important diseases and health conditions to assess current intervention programs, to design additional intervention programs, and to serve as a baseline for future similar monitory BRF surveys.

Hajjees live in Mina for at least three days in camps spread over the whole area of Mina. Each nationality

has its own camps, composed of groups of tents attached to one another. Each camp accommodates 2,800 to 4,000 Hajjees. To obtain our sample, we subdivided a map of Mina into 475 equal areas. From those areas, we randomly selected 44 clusters proportionate to the number of areas in each zone using a two-stage cluster sampling; 30-40 Hajjees were interviewed in each cluster.

We used a pre-tested self-administered questionnaire that had been translated into 10 languages. We also sought information on selected behaviors predisposing to the major Hajj-related illnesses and the sociodemographic factors that influence them, including use of identifying wristbands, vaccination against meningococcal meningitis, and risk factors for heat exhaustion or heat stroke, food poisoning and blood-borne diseases. The point prevalence of selected acute illnesses and some chronic diseases was calculated. Hajjees were asked whether they had received health education on ways to prevent the most common health problems. We assured each Hajjee that the information was confidential and did not ask for either names or passport numbers.

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# Meningitis in Makkah, January-April 1997

The Makkah Health Directorate routinely vaccinates residents against meningococcal meningitis with meningococcal vaccine (MCV). Since 1988, all religious visitors for the Hajj, the annual Islamic pilgrimage, have been required to produce a certificate of vaccination against meningococcal disease (MCD) issued not more than three years and not less than 10 days before arrival in Saudi Arabia [1,2,3]. However, in 1997, the surveillance system in Makkah detected successive cases of MCD among religious visitors during Ramadan, a holy month for Muslims.

In addition to an activated surveillance system and prompt reporting, primary health care centers (PHCCs) in densely populated quarters of Makkah thought to be inadequately covered with MCV (for serogroups A and C) set up visible mobile vaccination teams that provided free MCV inoculations in their catchment areas. These districts were predominantly inhabited by residents and/or religious visitors from Sub-Saharan Africa (the "meningitis belt"), South Asia and Turkey. The employees of major governmental institutions were also vaccinated. Chemoprophylaxis (a single dose of ciprofloxacin 500mg) was given to all household contacts of MCD patients. Patients seen at the PHCCs and the outpatient departments at Makkah hospitals were advised to be vaccinated with bivalent MCV; and MCV against group A MCD was temporarily incorporated into the routine childhood vaccination program for children aged three months to two years. MCV was made a prerequisite for renewal of health certificates of food handlers, issuance of passports to Saudis, renewal of residency permit (iqama) of non-Saudis and for other transactions at the Immigration Department; vaccination teams were located at City Hall and the Immigration Department to facilitate this activity.

We report the extent of the MCD outbreak, the epidemiologic characteristics of MCD cases, and the vaccination coverage with meningococcal vaccine (MCV) among the population of Makkah.

We reviewed the medical records of all bacteriologically confirmed cases of MCD admitted to Makkah hospitals. We divided Makkah into three geographical zones: immediately around the Haram (the Holy Mosque) within 500 meters, 500 meters to four kilometers away from Haram, and more than four kilometers from the Haram. A total of 32 clusters were randomly selected, and seven neighboring houses or apartments were selected following a random start of the first house. Up to 10 people were interviewed to ascertain their vaccination histories.

There were 51 confirmed cases of MCD from 15 countries (40% were Pakistani). Mean age was 48 years (range 6-83). Of patients, 70.6% were religious visitors, 25.5% were non-Saudi residents of Makkah and 3.9% were Saudis. The case-fatality rate (CFR) was 27.5%, and the CFR did not differ with the residency status. Pakistanis accounted for 50% of deaths. The survey (sample size = 707 persons) showed that the overall coverage with MCV within the last three years was 74.8% (95% CI 71.4%-78.0%) compared with 29.4% among cases. The MCV vaccine efficacy was 84% (95% CI 70%-93%). The vaccination coverage percent was 87.1% (95% CI 78.6%-92.7%) for religious visitors, 76.4% (95% CI 72.0%-80.4%) for non-Saudi residents, 69.9% (95% CI 61.6%-77.2%) for Saudi citizens, and 48.9% (95% CI 34.3%-63.7%) for illegal aliens. The

highest vaccination coverage was found in Sub-Saharan Africans (79.5%; 95% CI 69.3%-87.1%) and the lowest among Southeast Asians (56.9%; 95% CI 42.3%-70.4%). The vaccination coverage percent for the three geographical zones around the Haram decreased from 79.4% (95% CI 73.8%-84.1%) in the area that lies within 500 meters from Haram to 69.4% (95% CI 62.1%-75.8%) in the areas four kilometers or more from Haram. The reasons for not being vaccinated included not knowing about the disease (42.5%), being too busy to go to a health center (24.9%), considering vaccination not important (6.2%), and being told that vaccinations would be given in Saudi Arabia (1.5%); 24.9% gave no reason.

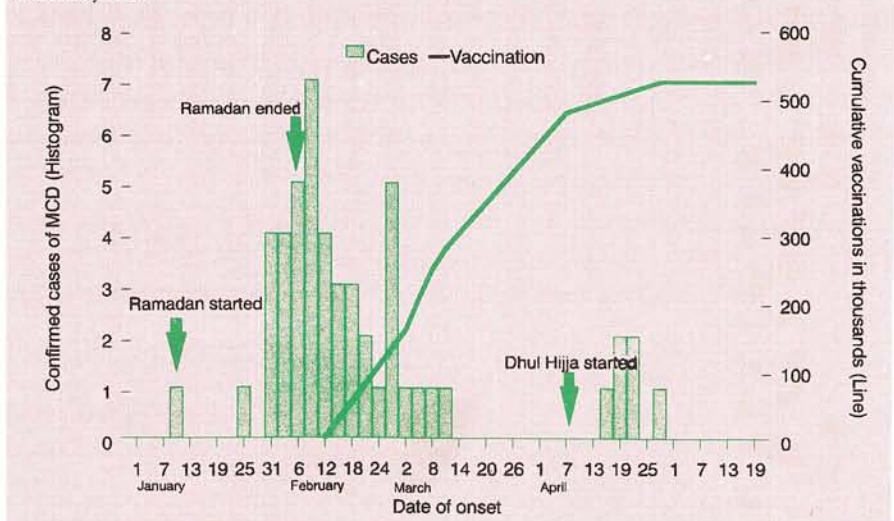
— Reported by Sami Al-Salman and H.E. El Bushra (Field Epidemiology Training Program)

**Editorial note:** The occurrence of MCD outbreaks during the period between Ramadan and Hajj lunar months (a three-month interval) has been noted in previous studies [1].

Although the vaccination coverage with MCV was relatively higher among international religious visitors than domestic religious visitors, more than two-thirds of the MCD cases occurred among international religious visitors. This is because the total number of religious visitors was about triple the number of residents of

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**Figure 1: Mass vaccination campaign against meningococcal disease, Makkah, 1997**





# Determinants of case-fatalities for meningitis during outbreaks in Makkah, 1988-1997

Meningococcal disease (MCD) is a major health problem in both developing and industrialized countries, especially sub-Saharan Africa and the Pacific islands [1]. The reported case-fatality rate (CFR) of MCD ranges from 2% to 15% [1]. In three to 11% of the survivors, serious sequelae were encountered [1]. Saudi Arabia, especially Makkah, has frequently been affected by meningococcal epidemics. The annual Islamic pilgrimage to Makkah, which attracts pilgrims from almost every country, plays a central role in the amplification and dissemination of MCD all over the world [2].

We studied the CFRs among MCD patients in Makkah hospitals for different strains of *Neisseria meningitidis* and the associated clinical, host and sociodemographic factors. We reviewed the surveillance system for MCD at the Health Directorate in Makkah and the medical records at six governmental hospitals in Makkah to ascertain the outcome of all confirmed cases (CC) of MCD that occurred during the period between 1988 and 1997 (1408-1417H).

There were 431 (89.2%) MCD cases due to *N. meningitidis* group A, 31 (6.4%) group W135, 16 (3.3%) group C, and 5 (1.0%) group B. Of all the 483 CC of MCD diagnosed in the last decade, 81 patients died (crude CFR=16.8%). The crude CFRs were 14.8%, 33.3%, 31.3%, and 20% due to *N. meningitidis* groups A, W135, C, and B respectively. About 70% of our patients died within 70 hours. After the first year of life, the age-specific CFR of MCD due to *N. meningitidis* group A increased steadily with increase in age ( $p < 0.05$ , chi-square for linear trend). The nationality-specific CFRs were above 18% among patients from Mali (25%), Pakistan (23%), Indonesia (22%), Turkey (18%), Bangladesh (18%) and Afghanistan (18%).

Predictors of death among CC of MCD were seeking first medical help at a foreign Hajj medical mission (RR 36%, 95% CI 19-56), presenting with coma to a hospital (RR 12; 95% CI

6.9-20), appearance of skin rash (RR 8.5; 95% CI 4.9-15), and vomiting (RR 2.6; 95% CI 1.2-5.5), having shock or hypotension during the course of the disease (RR 11; 95% CI 7.7-15), renal failure (RR 5.7; 95% CI 3.7-8.7), gastrointestinal (GI) bleeding (RR 7.3; 95% CI 5.8-9.3), disseminated intravascular coagulopathy (RR 6.8; 95% CI 5.4-8.6), being diabetic (RR 2.4; 95% CI 1.5-2.6), and being treated in a non-specialized hospital (RR 1.5; 95% CI 1.0-2.4). CFRs declined for patients from Southeast Asia and Sub-Saharan Africa, increased among patients from the Indian Subcontinent, Middle Eastern countries and North African countries, and remained unchanged (around 10% and 0%) for Saudis and Europeans respectively (Figure 1).

— Reported by Dr. Nadir Al-Sharif, Dr. Hassan E. El Bushra, Dr. Nasser A. Al-Hamdan (Field Epidemiology Training Program), Dr. Abdel Hafeez M. Turkistani, Dr. Abdel Wahab M. Al-Jumaily, Dr. Makki A. Ali and Dr. Adel Moneim R. Abdalla (Directorate for Health Affairs, Makkah)

**Editorial note:** The nationality-specific CFRs corroborate the results of some previous studies [2][3]. The relatively high CFR is due to the predominance of older patients in Makkah. Management of all MCD cases in a specialized hospital was beneficial. It has been reported that roughly two-thirds of patients who

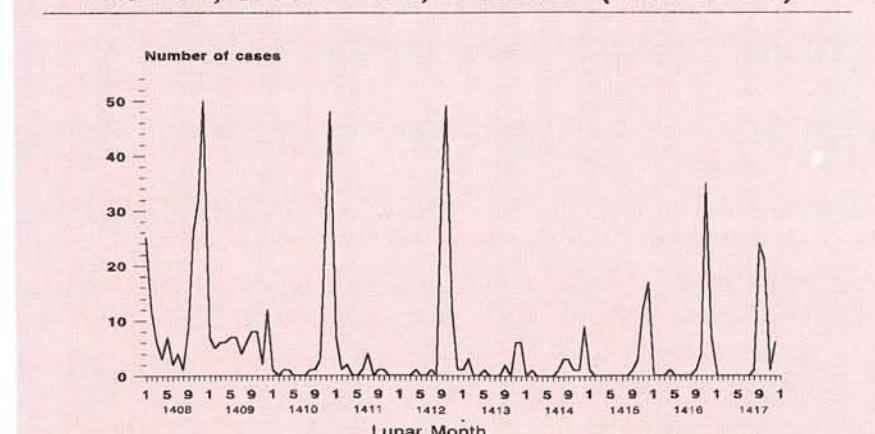
die succumb within 16 to 24 hours after hospital admission [4][5]. In fulminant conditions, with death occurring 12-48 hours after presentation, the CFR ranges between 15% and 30%. [6]. These alarming data emphasize the need for a prompt diagnosis [5].

The results were based on data from hospitals in Makkah and may not reflect the CFR of MCD diagnosed in other cities in Saudi Arabia. Use of MCV will remain the most important action to prevent MCD outbreaks and related deaths. Collaborative efforts between Health Affairs in Makkah and foreign medical missions in providing emergency medical care during Hajj is recommended.

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**Monthly number of cases of meningococcal meningitis Makkah, Saudi Arabia, 1988-1997 (1408-1417H)**





# Behavioral risk factors for pilgrims to Makkah

Continued from page 1

Out of 1,101 respondents (37 nationalities), 63% were performing Hajj for the first time. Almost three-quarters (74%) joined organized Hajj missions; 27% were residents of Saudi Arabia.

Identifying wristbands were worn by 57% of respondents. For prevention of meningococcal meningitis, 90% (95% CI 88-91) had received the required vaccination.

Risky behavior for food poisoning included bringing foods from their home countries (39%) and eating food from street vendors (27.3%). However, 1.6% (95% CI 0.9-2.6) had eaten no meal during the 24 hours preceding the survey.

Heat stroke prevention included the use of umbrellas (51%). Of all Hajjees, seven to nine percent moved between holy places (three journeys within 24 hours, a total of 30 kilometers) on foot, and 22% lost their way in Mina for a median of three hours; drank a mean ( $\pm$ SD) of 2670  $\pm$ 58.2 ml of fluids, and slept for a median of six hours per day.

After completing Hajj rites, 36% (95% CI 33-39) shaved their heads with razor blades and 21% (95% CI 17-26) put themselves at risk of bloodborne disease by using razor blades previously used by other Hajjees. In addition, 23% (95% CI 19-24) had cut wounds in their feet. Hajjees put themselves at risk of injury by hanging on the back of buses (6.4%, 95% CI 4.9-8.2), and 13% (95% CI 11-15) had severe hits with pebbles thrown at the Jamarat. The BRF were more common among domestic Hajjees.

Table 1 summarizes some of the differences in selected BRF among Hajjees.

— Reported by Dr. Sulaiman K. Al-Faify, Dr. Hassan E. El Bushra, Dr. Salim S. Al-Wahaibi, Dr. Sami A. Al-Salman, Dr. Ali A.S. BaOmer, Mr. Abdullah A. Khawajah, Mr. Nasser S. Al-Saif and Dr. Nasser A. Al-Hamdan (Field Epidemiology Training Program), and Dr. Mohammed H. Al-Jeffry (Directorate of Parasitic and Infectious Diseases, Ministry of Health)

**Editorial note:** Scarcity of data has restricted the scope of public health programs aimed at reduction of BRF among religious visitors, especially domestic Hajjees. Such programs require continuous revisions and evaluations. This survey would be the baseline for future surveys providing epidemiologic data needed for evaluating current public health programs, monitoring changes in behavioral risk factors, identifying emerging public health problems and developing appropriate and relevant interventions. Behavioral risk factors could be modified or avoided; if they are not, the results could be a costly burden to the health services.

Strict regulations helped in having high coverage with MCV, and it is possible that similar regulations on importation of foods, the presence of street vendors, etc., could help to prevent foodborne diseases. In addition, certain nationalities need special intervention programs.

The Hajjees from Southeast Asia demonstrated safe behaviors. Arabs

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Table 1: Selected behavioral risk factors of Hajjees, Makkah, Saudi Arabia, 1997 (1418H)

	Arab (GCC) countries	Other Arab countries	Sub-Saharan Africa	South Asia	Southeast Asia	Turkey, Americas, Europe, Australia	All Hajjees
<b>Demographic characteristics:</b>							
Mean age in years (SD)	33 (11)	42 (13)	37 (9)	43 (14)	46 (10)	38 (12)	40
Percent aged over 60 years	10	36	1.1	26	15	10	9
% performed Hajj at least once before	54	34	58	34	19	30	37
% joined an organized group (Hamla)	85	70	87	50	88	65	74
<b>Vaccination against MCD:</b>							
% vaccinated (95% CI)	83 (78-88)	89 (84-92)	93 (81-92)	91 (85-95)	98 (94-99)	92 (87-96)	90 (88-91)
% did not use an umbrella	76	40	52	48	27	46	51
% lost way in Mina or Arafat	13	29	22	17	29	23	22
% used an identifying wristband	21	51	72.7	63	98	60	57
<b>Exposure of Hajjees to health education related to Hajj-associated illnesses</b>							
% exposed to health education	60	53	77	66	92	56	65
Where:							
Home country	34	56	78	82	95	100	72
During the trip to Makkah	27	12	0	0	0.6	0	8
After arrival in Saudi Arabia	39	32	22	18	4	0	20



# Tobacco and public health

The World Health Organization (WHO) estimates that there are about 1100 million smokers in the world, representing about one-third of the global population (Table 1). The vast majority of the smokers are in developing countries (800 million) and most of these are men (700 million). In China alone, there are about 300 million smokers (90% men, 10% women), about the same number as in all developed countries combined. About one-third of regular smokers in developed countries are women, compared with only about one in eight in developing countries.

Globally, it is estimated that 47% of men and 12% of women smoke (Table 2). In the developed countries, the corresponding figures are 42% for men and 24% for women. In developing countries, available data suggest that about 48% of men and seven percent of women smoke. Table 2 also provides estimates of daily smoking prevalence for each of the six WHO regions. Male smoking prevalence varies substantially among regions, from less than 30% in the African Region to 60% in the Western Pacific Region (largely as a result of the male smoking prevalence of 61% in China, the largest country in the region). Even among developed countries, patterns of male smoking prevalence are not uniform. In countries with established market economies, male smoking prevalence averages 37%, compared with 60% in the former socialist countries of Central and Eastern Europe.

Smoking among women is most prevalent in the former socialist countries of Central and Eastern Europe (28%), countries with established market economies (23%) and

**Table 1: Estimated number\* of smokers in the world (early 1990s)**

Countries	Males	Females	Total
Developed countries	200	100	300
Developing countries	70	100	800
World	900	200	1100

\*in millions

Latin American and Caribbean countries (21%). In most other countries, fewer than 15% of women smoke.

In many countries people begin smoking at younger and younger ages, with the median age of initiation under 15 in many countries. Moreover, the prevalence of smoking is frequently very high among younger people. For example, in South Africa, over 50% of young men under the age of 35 are smokers, while the proportion of young people aged 18-24 who smoke in both France and Spain is over 40%. Starting to smoke at younger ages increases the risk of death from a smoking-related cause, and lowers the age at which death is likely to occur. Young people who start smoking early in life will often find it very difficult to quit smoking. Among those who continue to smoke throughout their lives, about one-half can be expected to die from a smoking-related cause, half of these in middle age (35-69 years) and the other half in old age (70 years and over). In countries such as South Africa, where more than 50% of young men are smokers, or France or Spain, where more than 40% of young people aged 18-24 smoke and most began at a young age, a very heavy future death toll from tobacco use can be expected.

In general, fewer cigarettes are smoked per day in developing countries (14) than in developed countries (22). Among developed countries, the highest rate of daily consumption per

smoker, 24 cigarettes per day, occurs in countries with established market economies, while in the former socialist countries of Europe, the corresponding figure is 18 cigarettes per day, on average. In the regions, the number of cigarettes smoked by daily smokers ranges from a low of 10 per day in the African Region to a high of 18 per days in the Region of the Americas and the European Region. The rate shown for all developed countries, 22 cigarettes per smoker per day, is higher than that of any single WHO region. This is because all WHO regions include at least some developing countries, where daily consumption per smoker is usually lower than in developed countries.

However, developing countries can take little comfort from these data. One of the characteristics of tobacco addiction is that tolerance to nicotine increases over time. In response, smokers increase their intake to the extent that they can afford to smoke more cigarettes per day. In many developing countries, smoking has become widespread only in recent years. As large numbers of young smokers grow older, the daily consumption of cigarettes per smoker can be expected to increase. This trend towards increasing daily consumption per smoker will be accelerated where economic development results in increased real disposable personal income, unless effective tobacco control measures reduce demand.

Source:

World Health Organization: Tobacco or Health: a Global Status Report, 1997

**Table 2: Estimated smoking prevalence for men and women, 15+ years of age, by WHO region, early 1990s**

WHO region or countries	Men %	Women %
<b>WHO regions</b>		
African	29	4
Americas	35	22
Eastern Mediterranean	35	4
European	46	26
Southeast Asia	60	8
Western Pacific	60	8
<b>More developed countries</b>	<b>42</b>	<b>24</b>
<b>Less developed countries</b>	<b>48</b>	<b>7</b>
<b>World</b>	<b>47</b>	<b>12</b>

\*Figures for Africa are based on very limited data and should be interpreted with caution



### التدخين بالأرقام

تدل الأبحاث على أن أخطار التدخين أكبر كثيراً مما كان يُظنُّ في الماضي. فمع استمرار التدخين مدة طويلة يصبح المدخنون عرضةً للوفاة نسبة تزيد ثلاثة أضعاف على غير المدخنين في كل الأعمار، ابتداءً من صغار البالغين. وفي المتوسط يعتبر المدخنون الذين يبدؤون في التدخين في سن المراهقة ويستمررون بانتظام معرضين للوفاة بسبب تدخينهم بنسبة خمسين بالمئة. ويتوفى نصف هؤلاء في منتصف العمر، وقبل بلوغهم سن السبعين، مما يعني أنهم يخسرون في المتوسط حوالي ٢٢ سنة من العمر المأمول. ولذلك فإن الشخص الذي يدخن باستمرار يتعرض لاحتمال الوفاة بسبب التدخين مباشرة بدرجة تساوي احتمالات وفاته بكل أسباب الوفاة مجتمعةً. تشير تقديرات منظمة الصحة العالمية إلى أنه يوجد في العالم حوالي مليار ومئة مليون من المدخنين، أي حوالي ثلث سكان العالم الذين هم في الخامسة عشرة من العمر أو فوقها. ومن هؤلاء نجد أن ثمانمئة مليون يعيشون في الدول النامية. وتدل الإحصائيات على أن ٤٧ بالمئة من الرجال في العالم، و١٢ بالمئة من النساء يدخنون. أما في الدول النامية فنسبة المدخنين بين الرجال تصل إلى ٤٨ بالمئة مقابل ٧ بالمئة من النساء، ولكننا نجد في الدول المتقدمة أن ٤٢ بالمئة من الرجال يدخنون في مقابل ٢٤ بالمئة من النساء.

ومع منتصف العشرينات من القرن القادم، أي بعد حوالي ٢٥ سنة تقريباً، يكون تحول وباء التبغ من الدول الغنية إلى الدول الفقيرة قد بلغ مراحل متقدمة جداً، بحيث يكون حوالي ١٥ بالمئة فقط من المدخنين في العالم يعيشون في الدول الغنية. وعندها ستكون مرافق الرعاية الصحية في الدول الفقيرة أعجز كثيراً من أن تستطيع مواجهة هذا الوباء الضخم.

الواقع أن الآثار الصحية المترتبة على استخدام التبغ تعتبر آثاراً مدمرة في بعض المناطق والأقاليم. ففي دول الكتلة الإشتراكية السابقة كان استخدام التبغ

سبباً في حوالي ٧١ بالمئة من كل الوفيات التي وقعت عام ١٩٩٥م. ومن المتوقع أن تزداد هذه النسبة بحيث تصبح في عام ٢٠٢٠ أكثر من ٢٢ بالمئة من كل الوفيات في هذه المنطقة ناجمة مباشرة عن التدخين. وفي عام ١٩٩٥م كان يقدر أن ٤١ بالمئة من كل الوفيات بين الرجال الذين هم بين الخامسة والثلاثين والتاسعة والستين من العمر في هذه المنطقة ناجمة عن استخدام التبغ.

**المصدر:** نمو لا يفسده التبغ، المكتب الإقليمي لشرق المتوسط منظمة الصحة العالمية، ١٩٩٨/٥/٣١م.

### السلوكيات الصحية الخطرة للحجاج خلال موسم حج ١٤١٧هـ.

يفد كل عام أكثر من مليوني مسلم من كافة أنحاء العالم إلى مكة المكرمة لأداء الركن الخامس في الإسلام وهو الحج. وللتقليل من المخاطر التي قد يتعرض لها الحجاج نتيجة لبعض السلوكيات الخاطئة فقد قامت وزارة الصحة بعدد من البرامج الإرشادية لتجنيب الحجاج تلك المخاطر.

قام برنامج الوبائيات الحقلية بتقييم عدد من تلك السلوكيات الخاطئة والخطرة لمحاولة إيجاد بعض الحلول لها لإيجاد قاعدة معلومات عن هذه السلوكيات يمكن الرجوع إليها مستقبلاً. ولهذا الغرض قام البرنامج بدراسة بعض هذه السلوكيات الخاطئة في منطقة منى حيث يقضي الحجاج ثلاثة أيام على الأقل، حيث تم تقسيم منى إلى أربع مناطق ثم قسمت هذه المناطق إلى ٤٧٥ منطقة متساوية وتم اختيار ٤٤ عنقوداً عشوائياً منها. وتمت دراسة السلوكيات التي تؤدي إلى أمراض الحج الخطرة مع الأخذ بعين الاعتبار الأوضاع الاجتماعية والفردية التي قد تساهم فيها، وذلك باستخدام إستبيان يعبأ ذاتياً من قبل الحجاج حيث تم ترجمة الإستبيان إلى عشر لغات مختلفة. شملت العينة ١١٠١ حاجاً يمثلون ٣٧ جنسية، أدى ٦٣٪ منهم فريضة الحج لأول مرة، وأتى ٧٤٪ ضمن حملات حج منظمة، ويقيم ٢٧٪ في المملكة العربية السعودية. يلبس ٥٨٤

(٥٧٪) حاجاً سوار المعصم. حصل ٩٠٪ من الحجاج على التطعيم المطلوب للحمى المخية الشوكية. برغم وجود تنظيمات تمنع إحضار الطعام مع الحجاج من بلدانهم إلا أن هناك بعض الحجاج (٣٩٪) يمارسون ذلك و ٢٧,٣٪ من الحجاج كان مصدر الغذاء لهم في المشاعر المقدسة الباعة المتجولين على الطرقات. ولم يتناول ١,٦ من الحجاج وجبة خلال الـ ٢٤ ساعة السابقة للدراسة. وبلغ متوسط ما يشربه الحاج من السوائل خلال الـ ٢٤ ساعة السابقة للدراسة ٢٥٠٠ ملل من السوائل.

إن استخدام الشمسية يعتبر أحد العوامل التي تساعد على الوقاية من ضربات الشمس خلال موسم الحج، ووجد أن ٥١٪ استخدموا الشمسية خلال تجولهم بين المشاعر المقدسة، كما أن ٧-٩٪ من الحجاج لم يستخدموا وسائل النقل العامة في التنقل بين المشاعر المقدسة حيث تنقلوا على أقدامهم. فقد ٢٢٪ من الحجاج طريقهم في منى بمتوسط زمني قدره ٣ ساعات تقريباً. وكان متوسط النوم للفرد ٦ ساعات يومياً.

كما وجدت الدراسة أن ٣٦٪ من الحجاج حلّقوا رؤوسهم بالموس بعد الإنتهاء من أداء واجبات الحج و ٢١٪ منهم عرضوا أنفسهم لخطر الأمراض التي تنتقل عن طريق الدم حيث استخدموا أمواس سبق استخدامها من قبل حاج آخر بالإضافة إلى ذلك أصيبوا بجروح في أقدامهم. علماً أن ١٣٪ من الحجاج أصيبوا بإصابات بالغة في رؤوسهم عند قيامهم برمي الجمرات. أن محدودية مصادر المعلومات عن السلوكيات الصحية للحجاج قد تؤدي إلى الحد من الفائدة المرجوة من برامج الصحة العامة الموجهة إلى الحجاج للتقليل من السلوكيات الخطرة وخاصة حجج الداخل ومثل هذه البرامج بحاجة دائمة للمراجعة والتقييم. وما ورد من نتائج في هذه الدراسة يمكن أن يستفاد منه بشكل كبير لتطوير هذه البرامج، خاصة وأن برنامج الوبائيات الحقلية سيقوم بدراسة سلوكيات الحجاج كل عام إن شاء الله.

إعداد: ص. سليمان الفيبي  
برنامج الوبائيات الحقلية



## Risk factors

Continued from page 4

(both from Saudi Arabia and from other GCC countries) are at risk for heat exhaustion because they travel by land, rarely use umbrellas, and have less exposure to health education. Head-shaving remains an important risk factor for bloodborne diseases, especially among pilgrims from Sub-Saharan Africa, the GCC countries and South Asia.

Half of the Hajjees with diarrhea and cough utilized PHCCs. The fires that swept Mina that year could explain the high incidence of cough. It was estimated that there were 100,000-150,000 diabetic Hajjees, and special programs may be required for their care. The use of identification wristbands needs promotion.

## MCD in Makkah

Continued from page 2

Makkah during the Hajj season. Such vaccination coverage rates would make the number of unvaccinated international religious visitors more than double the number of unvaccinated domestic religious visitors. Unfortunately, we were not able to calculate nationality-specific attack rates due to lack of data needed for denominators (i.e., the number of pilgrims from each country).

The vaccination coverage with MCV could be increased by intensified health-education programs, as a sizable proportion of Makkah residents and religious visitors were ig-

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## Mark your calendar . . .

### Inside the Kingdom

**Oct. 20-21, 1998:** "Primary Health Care: The Way Forward." International symposium sponsored by Department of Family Medicine, King Fahad National Guard Hospital, Riyadh. Contact: Academic Affairs Department, King Fahad Hospital, National Guard - Health Affairs, PO Box 22490, Riyadh 11426. Tel: 01-252-0088 ext. 2329/2340; fax: 01-252-0040.

**Feb. 8-10, 1999:** "Early Detection and Periodic Health Assessment." Fourth scientific conference sponsored by the Saudi Society of Family and Community Medicine, Makkah. Contact: Makkah office, Saudi Society of Family and Community Medicine, PO Box 9195, Makkah. Tel: 02-548-0853 or 02-542-1564; tel/fax: 02-542-0542.

### Outside the Kingdom

**Nov. 18-21, 1998:** 4th International Epidemiological Association Eastern Mediterranean Region Scientific Meeting, Tunis, Tunisia. Contact: Prof. Nouredine Achour, National Institute of Public Health, 5-7 Bloc IV, Rue Khartoum (10eme etage) Diplomat, 1002 Le Belvedere, Tunis, Tunisia. Tel: +2161-800-506 or +2161-787-414; fax +2161-795-889.

**Aug. 31-Sept. 4, 1999:** The XV International Scientific Meeting of the International Epidemiological Association, Epidemiology for Sustainable Health, Florence, Italy. Contact: Organising Secretariat, IEA Florence 99, c/o SINEDRION, Via G. Marconi, 27, 50131 Firenze, Italy.

norant about MCD, its serious complications and availability of a safe and efficacious vaccine. About one-fourth of those who were not vaccinated stated that they could not do so because they had no time to go to the nearest health center for vaccination against MCD. Accordingly, provision of vaccination services to the public through mobile vaccination teams would be beneficial.

The majority of MCD cases were Pakistani and Turkish religious visitors. Vaccination of international religious visitors who could not show a valid MCV certificate at airports and seaports is recommended and would be cost-effective. Religious visitors from certain nationalities, especially those from areas known to have been affected with outbreaks of MCD, would require some special additional efforts.

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3. Ragazzoni HR. Meningococcal disease among travelers returning from Saudi Arabia. *MMWR* 1987;36:559.

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Editors



## Selected notifiable diseases by region, Jan.-March 1998

	Gonfuda	Goriat	Al Jouf	Baha	Najran	Gizan	Al Shmal	Hail	Tabuk	Bisha	Asir	Hafr Al Batin	Hasa	Eastern	Qassim	Madinah	Taif	Jeddah	Makkah	Riyadh	Total
Measles	21	0	0	5	2	20	0	2	4	12	50	16	14	12	11	61	211	179	136	33	788
Mumps	8	2	10	19	7	17	12	2	8	3	24	7	3	30	21	80	19	194	36	31	533
Rubella	1	1	0	0	0	0	1	0	1	0	13	1	1	12	11	8	5	18	9	0	82
Varicella	27	19	46	67	136	68	62	71	167	178	579	300	359	1134	242	433	343	558	316	392	5496
Brucellosis	4	11	23	48	61	46	19	115	21	56	330	43	28	37	326	37	29	24	69	93	1420
Meningitis, mening.	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	2	7
Meningitis, other	0	0	0	0	1	0	0	0	0	0	3	0	0	0	2	4	0	0	5	0	15
Hepatitis A	1	7	28	7	98	31	8	16	15	54	113	50	27	37	192	47	3	20	15	61	830
Hepatitis B	3	2	0	53	7	7	9	2	3	10	63	1	10	136	31	23	2	151	103	95	711
Hepatitis C	0	1	0	27	3	0	2	4	4	2	1	3	5	40	7	9	1	79	82	32	302
Hepatitis, unspecified	0	1	0	0	8	59	3	71	16	0	37	0	9	2	0	5	0	28	55	14	308
Typhoid & paratyphoid	0	0	0	3	0	1	0	1	2	8	10	0	2	9	1	5	0	3	18	3	66
Amoebic dysentery	1	6	0	0	32	4	0	59	43	27	261	0	13	11	132	21	30	337	51	22	1050
Shigellosis	0	0	0	4	63	2	0	0	31	0	0	11	3	35	8	5	12	13	0	20	207
Salmonellosis	0	0	0	10	6	0	0	0	12	0	6	17	10	177	9	0	0	25	23	85	380
Syphilis	0	0	0	0	0	1	1	1	0	1	2	0	6	16	0	0	0	12	2	8	50
VD, other	0	7	0	1	0	6	0	0	0	1	6	3	32	15	0	0	0	30	3	2	106

## Comparisons of selected notifiable diseases, 1997-1998

	Jan-Mar 1998	Jan-Mar 1997	Change %	Jan-Mar 1998	Jan-Dec 1997		Jan-Mar 1998	Jan-Mar 1997	Change %	Jan-Mar 1998	Jan-Dec 1997
Diphtheria	0	0	0	0	1	Meningitis, other	94	97	-3.1	94	437
Pertussis	10	8	25	10	80	Hepatitis A	830	1034	-20	830	4524
Tetanus, neonatal	1	8	-88	1	26	Hepatitis B	711	694	2.5	711	2967
Tetanus, other	2	3	-33	2	18	Hepatitis C	302	297	1.7	302	1167
Poliomyelitis	0	0	0	0	0	Hepatitis, unspec.	308	347	-11	308	1542
Measles	788	824	-4.4	788	3978	Typhoid/paratyph.	66	75	-12	66	299
Mumps	533	485	9.9	533	2414	Shigellosis	207	256	-19	207	819
Rubella	82	79	3.8	82	373	Salmonellosis	380	383	-0.8	380	2379
Varicella	5496	12329	-55	5496	41315	Amoebic dysentery	1050	1585	-34	1050	5309
Brucellosis	1420	1016	40	1420	5781	Syphilis	50	52	-3.9	50	219
Meningitis, mening.	7	74	-91	7	108	VD, other	105	181	-42	105	664

## Diseases of low frequency, January-March 1998

Yellow fever, plague, diphtheria, polio, rabies, viral encephalitis, hemolytic uremic syndrome: No cases

Pertussis: 10 (Riyadh 2, Makkah 4, Madinah 1, Eastern 3)

Neonatal tetanus: 1 (Gizan 1)

Other tetanus: 2 (Makkah 1, Eastern 1)

Guillain-Barre syndrome: 11 (Riyadh 4, Jeddah 4, Asir 1, Bisha 1, Baha 1)

Echinococcosis: 4 (Riyadh 1, Eastern 1, Hafr al-Batin 2)

Suspected polio: 2 (Riyadh 1, Najran 1)