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Alkhurma Hemorrhagic fever outbreak in Najran city, Southern Saudi Arabia, 2006-2009.

The preventive medicine department of the General Health Directorate in Najran reported an unusually large number of patients suffering from hemorrhagic fever since 2003. The first cases appearing in this outbreak were reported from Alkhurma, near Taif city, so the investigators used the name Alkhurma hemorrhagic fever (AHFV). This case control study aims to describe the epidemiologic characteristics of the outbreak, associated risk factors, and to provide evidence-based recommendations for control and prevention of its recurrence.

The study was conducted in Najran City. A case was defined as any person who lived in the catchment area of Najran General Health Directorate and laboratory confirmed as suffering from AHFV, during the period from 1st of January 2006 to 30th of April 2009. Controls were defined as any household or neighborhood person who had not suffered from AHFV during the same period, confirmed by serological examination. A total of 28 cases and 65 controls were included in the study.

Out of 28 AHFV cases, 11 (39.3%) had sought medical advice and been hospitalized. The rest were diagnosed by surveillance of household contacts. Clinical features reported were fever (53.6%), epistaxis (28.6%), rash (25.0%), gum bleeding (17.9%), change in urine color (21.4%) and neck rigidity (10.7%).

The first case appeared in December 2006 followed by two cases the following month in 2007, 20 cases appeared in 2008, and 5 over the first four months of 2009. The majority of the cases occurred during the period from March to July (Figure 1). Half the cases (50.0%) were 20-39 years of age, 46.4% were under 20, and 3.6% over 40. Males constituted 64.3% and 53.6% were single. The highest proportion was Yemenis (85.7%), followed by Saudis (10.7%), and Bangladeshis (3.6%). Regarding occupations, 14.3% had livestock-related occupations (shepherds and butchers), 42.9% were students, 17.9% were housewives, and 25.0% other occupations. Half of the cases (50.0%) gave history of owning or raising domestic animals compared to 26.2% of controls (Odds Ratio OR 2.82, CI: 1.02-7.91), which was statistically significant. Furthermore, individuals living closer than 100 meters to farms had a significantly higher risk of acquiring infection (OR 4.00, CI: 1.4-11.8).

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Dealing with domestic animals and related behaviors, such as feeding animals, slaughtering, milking, and handling raw meat products, was also statistically significant. Those who practiced multiple behaviors had a significantly higher risk (p value <0.001).

A higher proportion of cases reported history of tick bites than controls (35.7% compared to 4.6% respectively; OR 11.48, CI 2.51-59.73), showing a statistically significant association between tick bites and disease. There was no association between mosquito bites and acquiring the disease.

Variables that were significant in the bivariate analysis (at P<0.05) or believed to be associated with AHFV, namely dealing with animals, tick bites, neighboring farms, drinking unpasteurized milk and mosquitoes bites, were entered in backward stepwise regression analysis. Dealing with animals, tick bites and neighboring farms remained significant predictors for infection. These variables were entered in the final model for controlling for each other as well as for age, gender, nationality and occupation. Dealing with animals and tick bites remained significantly associated with the disease (adjusted OR 7.72, CI: 1.16-51.23 and OR 9.67, CI: 1.41-66.18, respectively). Neighboring farms did not show an association with the disease (adjusted OR=2.85; CI: 0.83-9.76) (Table1).

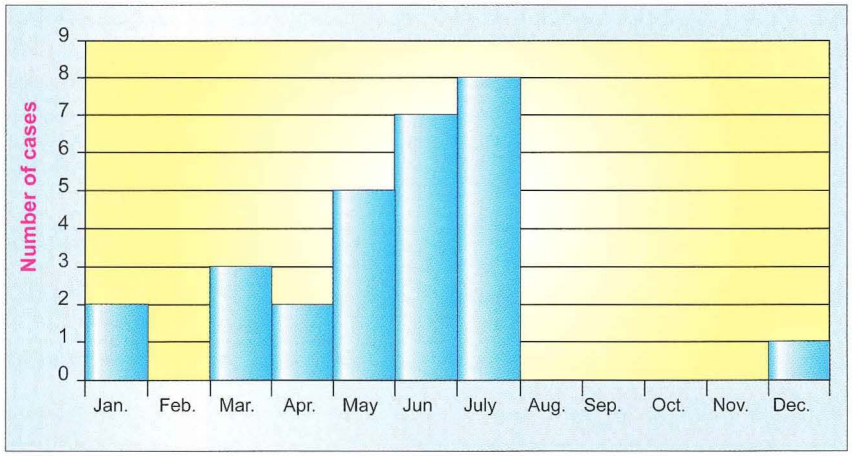
- Reported by: Dr. Abdullah Alzahrani, Dr. Hassan Al Shaiban, Dr. Mohammad Al Mazroa, Dr. Osamah Al-Hayani (Field Epidemiology Training Program).

Editorial notes: Alkhurma hemorrhagic virus is a member of the family Flaviviridae, discovered in Saudi Arabia for the first time in 1995. It was unknown before that time until one patient, suspected to have Congo-Crimean hemorrhagic fever, died in 1994. Specimens from that patient, sent to the Center for Disease Control and Prevention (CDC) confirmed the diagnosis of a new virus "flavivirus", which was closely related to the Kyasanur Forest disease virus that exists in India.[1,2] That patient reportedly developed fever after slaughtering a sheep imported from Alkhurma city (near Taif).

Active surveillance of hemorrhagic diseases during Hajj season of 2001 detected four cases of acute febrile illness. They were hospitalized and blood specimens were sent to the CDC for further investigations and the result showed their positivity for the new flavivirus.[3] Between 2001 to 2003, another 20 cases were detected and laboratory confirmed. These cases were reported from Alkhumra district, south of Jeddah and the virus was given the name Alkhumra virus.[3]

Several routes of transmission have been suggested, including contamination of a skin wound with the blood of an infected vertebrate, bites of an infected tick, or by drinking unpasteurized contaminated milk.[4]

Figure 1: Seasonal distribution of Alkhurma hemorrhagic cases in Najran, Saudi Arabia, 2006-2009.



To our knowledge, this is the first study to assess risk factors associated with AHFV. Unlike previous studies; patients with subclinical illness discovered accidently during the past three years were also included. In this study, the seasonal pattern of the disease (Mar-Jul) is similar to that found in the western province (Jeddah and Makkah) among 11 cases recovered during the period from 1994-1999, which may support the evidence of its relation with the activity peak of ticks (feeding) occurring at the beginning of March.[5,6]

Risk factors for human infection identified in this study included a broad array of activities associated with animal exposures, most significantly direct contact. Close farms to houses was associated with an increased risk of disease, but was not significant with multivariate analysis, which may reflect that closeness to farms in itself is not associated with disease, but rather the direct contact with neighboring animals.

Although livestock related occupations, such as butchering, showed no significance association with disease, a history of slaughtering livestock was highly associated, which agrees with results of previous studies.[1,3]

Ingestion of unpasteurized milk has been noted as a risk factor in previous studies. The mode of transmission is unclear, but was suggested to be due to contamination of milk.[4,7] Although bivariate analysis in this study showed a significant association between unpasteurized milk ingestion and disease, adjusting for other risk and demographic factors showed no significant association.

Only 10 of the 28 interviewed cases had a history of ticks' bite within a month before getting the disease. However, this was found to be highly significant even after adjusting for other variables. The association of tick bites and AHFV is supported by the study of Charrel et al, where Alkhurma hemorrhagic virus was isolated from ticks (Ornithodoros spp) collected from camels and camel resting places in western Saudi Arabia.[8] The role of ticks

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attern of diseases among visitors of Mina Health Centers during Hajj season, 1429 H (2008G).

This study was conducted to determine the pattern of diseases among hajjis seeking medical care at the Primary Health Care Centers (PHCCs) in Mina, in order to provide evidence-based information for future optimal allocation of health resources in these facilities. This descriptive study was conducted based on review of medical records at PHCCs in Mina area that work non-stop during a five day period starting from the 8th of Dhulhijjah, 1429 H.

Two stage stratified systematic random sampling was used. At first 13 centers were randomly selected from the 25 centers. A sample size of 3,732 was calculated to estimate diseases with proportion of 2.5% or more with a precision of 0.5% at 95% confidence level; then increased to 5,000 to cater for the anticipated incompleteness of records. Then the sample size was stratified according to work load of centers and records were systematically randomly selected and reviewed. Data was collected daily and analyzed using SPSS based on adjusted weighted values of variables.

There was variable workload between primary health care centers in Mina. Some PHCCs had a heavy daily workload (PHCC Muzdalifa-1) while others did not (PHCC 8). The daily number of patients reached its peak on day 11. Predominantly patients attended the morning shifts (58.2% compared to 41.8% during evening shift) with two peaks at the beginning of each shift (8:00 am and 8:00 pm).

The total number of patients records studied was 4,136. The majority of patients were males (70.7%), in the age group of 45-64 years (42.8%) with a male: female (M:F) ratio of 2.4:1. Hajjis constituted 94.9% of all patients; those from Arab countries 44.4%, from South Asian countries 27.0%, and the lowest to visit the centers were the Southeast Asians (0.8%). Among different nationalities, Egyptian (18.9%) and Pakistani patients (17.5%) were the most frequent attendees to the surveyed centers, followed by Saudis (8.3%).

The majority of the patients (79.8%) were suffering from only one disease, while only 20.2% had multiple diseases. The average number of diseases per patient was 1.21 (± 0.44).

The most frequently occurring diseases (Table 1) were those pertaining to respiratory system (60.8%), followed by musculoskeletal diseases (17.6%), skin diseases (15.0%) and gastrointestinal diseases. Pharyngitis (23.7%) and common cold (20.6%) were the most common among respiratory diseases. Among chronic diseases, diabetes (2.6%) and asthma (2.5%) were the major diseases reported, and were more frequent among those over 65.

Two thirds of the musculoskeletal disorders (63.4%) occurred on days 9 and 10, almost half of the injuries (45%) occurred on day 10, and two thirds of skin diseases (69.4%) occurred on day 10 and 11. Only respiratory and skin diseases showed significant difference (p value < 0.001 each).

Males were more affected by skin diseases than females (17.6% vs 8.4%, p <0.0001) while females were more affected by musculoskeletal diseases (22.8% vs 15.4%, p value of less than 0.0001). Respiratory diseases and gastro-intestinal and liver diseases were relatively higher among the age group of <15 years.

Respiratory diseases were the most common among all nationalities (59.3%), gastrointestinal diseases among Saudis (19.3%), skin diseases among other Arabs (21.5%) and those from Turkey and developed countries (13.9%), musculoskeletal diseases among Non-Arab Africans (28.9%), South Asians (21.6), Iranians (19.6%) and Southeast Asians (6.0%). Respiratory diseases, musculoskeletal diseases, skin diseases and gastro-intestinal diseases, all showed

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Table 1: Distribution of disease groups by gender among patients attending PHCCs in Mina, hajj, 1429 H.

Diseases Groups*	Total		Male (n=2925)		Female (n=1211)		Diseases Groups†
	N (n=4136)	%*	N	%**	N	%**	
Cardiovascular Diseases	87	2.1	44	1.5	42	3.5	< 0.0001
Respiratory Diseases	2516	60.8	1718	58.7	750	61.9	0.0565
GIT Diseases #	540	13.1	337	11.5	193	15.9	0.0001
Skin Diseases	620	15.0	516	17.6	102	8.4	< 0.0001
Eye and Ear Diseases	142	3.4	78	2.7	64	5.3	< 0.0001
Diabetes Mellitus	106	2.6	77	2.6	29	2.4	0.6597
Urinary Tract Infections	61	1.5	39	1.3	22	1.8	0.2406
Musculoskeletal Diseases	727	17.6	451	15.4	276	22.8	< 0.0001
OBsGyn Diseases #	7	0.2	0	0.0	7	0.6	< 0.0002
Injuries	67	1.6	52	1.8	14	1.2	0.1465
Dental Diseases	40	1.0	32	1.1	8	0.7	0.1950
Other Diseases	112	2.7	86	2.9	26	2.1	0.1527

* percentage according to number of patients (n=4136), total of diseases = 5,025, as more than one disease may be recorded per patient.

** percentage according to gender, total of diseases = 5,025, as more than one disease may be recorded per patient.

† P value based on chi square.

GIT (gastrointestinal, liver and gallbladder) disease, ObsGyn (Obstetric and gynecological) diseases.

Evaluation of buses and bus drivers in Al-Madinah Al-Monawarah during hajj Season 1429 H – 2008 G.

Every year more than 2 million Muslims from over the world arrive to the Holy City of Makkah for Hajj. This large number travel between the holy areas mostly by bus. In consequence, there is congestion of traffic and bus accidents may occur. No previous studies have been conducted to investigate the main risk factors of bus accidents during hajj. The objectives of this study were to evaluate the health, legal status and knowledge of bus drivers towards first aid, and to assess the safety standards in buses participating in Hajj 1429 H (2008G), in order to produce recommendations that may help reduce traffic accidents and preserve the lives of pilgrims.

This cross-sectional study was carried out among bus drivers in Al-Madinah Al-Monawarah at the main bus terminal, by direct interview. Stratified random sampling was applied among the 17 transportation companies that covered transportation during hajj, proportionate to the total number of each company.

The study sample included 442 bus drivers. Their mean age was 42 years (SD ± 7.1). The sample included 10 nationalities; over half were Egyptians (52.7%), followed by Syrians (38%). Illiterate drivers represented 5.7%, while 37.3% had completed the intermediate level of education. Most of the participants original occupation was drivers (88.7%). Seventy two percent had undergone the amphetamine test applied by the Ministry of Health (MOH), 32% of them had not received their results.

Eleven percent of bus drivers had been sick with acute symptoms. The majority were suffering from acute respiratory tract infection (90.2%); 4.3% had chronic illnesses. Eighty eight percent had been vaccinated against meningococcal meningitis, and 8.4% regularly wore a face mask.

The entire sample had driver's licenses and permission to participate in Hajj. It was found that 50.7% were exceeding the speed limit, and 38.9% reported sometimes stopping at yellow traffic lights.

A large percentage of the bus drivers (82.8%) had the ability to administer first aid if required, 44.6% did not know the emergency phone numbers, and only 44.3% knew the phone number of the Red Crescent.

The importance of fastening the seat belt was recognized by 96.6% and 85.5% were actually using it. According to the participant drivers' opinion, the most common cause of RTAs was carelessness of the driver (table 1).

Regarding prevention of RTAs, 47.0% thought that the majority could be prevented by educating the drivers. In spite of the observation that 96.6% of buses had a safety belt for passengers, only 5.5% actually fastened it. Smoking was allowed by 6.6% of drivers inside their buses. Emergency exits, ventilation system, and both a first aid bag and fire extinguisher were available in most of the buses.

The study revealed that 50.2% of the bus drivers slept under 8 hours a day, and the working hours exceeded 12 hours among 21% of participants.

According to the bus driver's opinion, stimulants were used by 41.9%. Smokers represented 52.5% and 75.1% were satisfied with their job.

- Reported by: Dr. Ali Mohammed Al wadey, Dr. Mohammed AlMazroa, Dr. Osamah Al Hayani (Field Epidemiology Training Program).

Editorial notes: Road Traffic Accidents (RTAs) remain a social and economic problem in many countries of the world. The World Health Organization (WHO) in 2002 estimated that 1.2 million people are killed and 50 million injured in road-traffic crashes worldwide. In the Eastern Mediterranean Region, there were an estimated 132,207 road traffic deaths in year 2002, equivalent to 362 deaths per day and 2535 deaths a week, with a rate of 26.3 deaths per 100,000 population. RTAs are the second cause of mortality in the Eastern Mediterranean Region with a percentage of 31%.[1]

In Saudi Arabia, between years 1971 and 1997, 564,762 people died or were injured in RTAs, amounting to one person killed and four injured every one hour.[2] It has been reported that 81% of deaths at MOH hospitals are due to RTAs, 20% of beds are occupied by RTA victims, and 7% of injured persons will develop disabilities.[3,4]

Accidents occur if there is failure in one or a combination of the three major factors: human error, vehicle maintenance or road environment. A very large percentage of RTAs are attributed to human error. It has been reported in Saudi Arabia that 85% of the total number of RTAs are caused by the driver.[5] These errors include violation of traffic lights, inattention, exceeding the speed limit, tiredness or sleepiness, alcohol consumption, driver's health condition, such as visual problems, chronic diseases, use of sedative medications or other factors. Vehicle maintenance is also necessary to decrease the number of RTAs, especially tires, lights, breaks, windshield wipers, in addition to the availability and use of seat belts by both drivers and passengers.

The use of the safety seat belt is considered one of the most important safety measures. The International Report on the protection from causalities resulting from RTAs issued by the WHO states that use of the seat belt could diminish the death rate resulting from RTA by rates varying between 25% and 50%.6 A previous study investigating RTAs in Saudi

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Table 1: Bus drivers' opinion on the causes of RTAs, hajj season, 1429 H – 2008 G.

Cause of RTA	Number n=478	Percent %
Carelessness of driver	134	28.0
Speeding	113	23.6
Bad quality of roads	92	19.3
Inexperience of driver	78	16.4
Failure of bus	57	11.9
Exhaustion	2	0.4
Drugs	2	0.4

Evaluation of buses and bus drivers in Al-Madinah Al-Monawarah during hajj Season 1429 H – 2008 G, cont...

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Arabia reported that all those injured among the study sample had not been wearing seat belts.[7]

Due to the large number of hajjis in the Holy City of Makkah during Hajj, it is inevitable that the rate of RTAs increase. In Dhul-Hijjah 1425 H, 1811 RTAs were reported, equivalent to 41.6% of the whole number of accidents in the Kingdom on the same month, with 47.6% injured and 703 dead.5 Safety seat belt, knowledge of the traffic regulations in the kingdom, and how to deal with emergencies as well as bus standard safety measures are important during driving for both drivers and passengers.

Regardless of the way hajjees arrive to Makkah, whether by air, sea or land, they have to use buses for transportation within the holy places. In attempts to reduce RTA during hajj, the MOH applies a mandatory medical test on bus drivers to evaluate their status with respect to substance addiction. Furthermore, the General Syndicate of Cars have applied a new regulation not allowing for bus travel between Makkah and Madinah after 11 pm, in an effort to avoid RTAs as a result of tiredness or sleep.

This study showed that all bus drivers had driving licenses and permission to drive during hajj season 1429H. However, almost all of them were non Saudis and did not know the traffic regulations of the Kingdom, and had never encountered an emergency situation, such as injuries or accidents during hajj, and had no clear idea about the hajj plan. Bus safety measures were available in most of the buses.

Health education regarding the seriousness of stimulants abuse, importance of the MOH stimulant test and traffic educational programs must be initiated.

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might explain the relationship of some behaviors, such as direct contact with animals and milking, as well as neighboring farms, with disease since the exact mode of transmission is not yet known.

Seroprevalence studies to establish endemicity of the disease should be conducted along with studies on animals and possible vectors, such as ticks and mosquitoes, should be encouraged. Health education and the safety measures and precautions to prevent infection should also be conducted.

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Table 1: Multivariate logistic regression results of risk factors of Alkhurma hemorrhagic fever, Najran, 2006-2009.

Diseases Groups*	Crude Or		Mode 1		Model 2	
	OR	CI	aOR*	CI	aOR**	CI
Dealing with domestic animals	5.39	1.74-17.3	3.17	0.96-10.43	7.72	1.16-51.23
Ticks bites	11.48	2.51-59.73	6.20	1.34-28.70	9.67	1.41-66.18
Adjacent farms distance	4.00	1.40-11.75	3.63	1.25-10.49	2.85	0.83-9.76

* Adjusted OR for the risk factors (dealing with domestic animals, tick bites, adjacent farms distance) after elimination of non-significant variables (drinking unpasteurized milk and owning or raising domestic animals) using backward stepwise strategy.

** adjusted for the risk factors (dealing with domestic animals, tick bites, adjacent farms distance) as well as for age group, gender, nationality, and occupation.

ملخص باللغة العربية

فاشية حمى الخرمة الفيروسية النازفة بمدينة نجران، جنوب المملكة العربية السعودية، ٢٠٠٦-٢٠٠٩.

يعتبر فيروس الخمرة من الفيروسات التي اكتشفت حديثاً في المملكة العربية السعودية، حيث سجلت أول حالة للمرض عام ١٩٩٥م لجزار أصيب بالأعراض بعد ان قام بذبح أغنام مصدرها منطقة الخرمة قرب الطائف. تلت هذه الحالة حالات أخرى ظهرت جميعها بمنطقة مكة المكرمة ومؤخرا بمنطقة نجران. هدفت هذه الدراسة إلى تقييم مدى خطورة وانتشار المرض و تعيين مصدر العدوى وعوامل خطورة المرض.

تم القيام بدراسة ضابطة حيث اختيرت العينة على أساس حالتين ضابطة مقابل كل حالة مصابة في الفترة من ٢٠٠٦-٢٠٠٨م والتي بلغت ٩٣ حالة (٢٨ حالات مصابة و٦٥ حالات ضابطة).

إحدى عشرة حالة مصابة من ٢٨ تم تنويمهم وتشخيصهم كحالات مؤكدة للمرض بينما اكتشفت ١٧ حالة أثناء الاستقصاء الوبائي لمخالطي المصابين. وقد ظهرت أغلبية الحالات خلال الفترة من مارس حتى يوليو.

أظهرت الدراسة أن التعامل مع الحيوانات الأليفة (مثل تغذية الحيوانات، الذبح، الحلب والتعامل مع منتجات اللحوم النيئة) لها علاقة إحصائية العلاقة مع مرض حمى الخرمة حيث كانت هناك نسبة أعلى بكثير من الحالات المصابة (٤٦,٤٪) تتعامل مع الحيوانات أكثر من العينة الضابطة (١٣,٨٪) (OR = ٥,٣٩ و فترة ثقة بين ١,٧٤-١٧,٣).

أظهرت الدراسة وجود علاقة إحصائية بين لدغات القراد وظهور هذا المرض حيث بلغت الحالات المصابة والتي لديها تاريخ سابق بالإصابة بلدغة حشرة القراد نسبة أعلى من الضوابط (٣٥,٧ ٪ مقابل ٤,٦ ٪ على التوالي، معامل الخطورة = ١١,٤٨، فترة ثقة بين ٢,٥١-٥٩,٧٣).

و عند دراسة العلاقة بين حمى الخرمة النازفة والمتغيرات المستقلة باستخدام تحليل الانحدار المتعدد، تم إدراج المتغيرات التي أظهرت دلالة إحصائية خلال التحليل ثنائي المتغيرات (عند قيمة $p < 0.05$) أو من خلال دراسات أخرى أظهرت علاقة ضمن المتغيرات الأخرى والفئات العمرية والجنس والجنسية والمهنة، ظهر أن التعامل مع الحيوانات ولدغ القراد فقط كانوا ذوي دلالة إحصائية مع المرض (معامل الخطورة ٧,٧٢ ، فترة ثقة : ١,١٦-٥١,٢٣ و معامل الخطورة المعدل ٩,٦٧ فترة ثقة: ١,٤١-٦٦,١٨ على التوالي) .

أوصت الدراسة بضرورة عمل دراسات مسح مصلي للسكان بالاضافة إلى دراسات عن الحيوانات ونواقل المرض لتقييم الوضع الوبائي بمنطقة نجران كما أوصت بضرورة تكثيف التثقيف الصحي عن المرض وكيفية الوقاية منه.

– إعداد: د. عبدالله الزهراني ، د. حسن آل شيبان، د. محمد المزروع، د. أسامة الحياني (برنامج الوبائيات الحقلي).

نمط الأمراض المنتشرة بين مراجعي المراكز الصحية بمنى خلال موسم الحج ١٤٢٩ (٢٠٠٨).

يتعرض الحاج للعديد من المخاطر الصحية عند قيامه بمختلف مناسك الحج والمتعلقة بالظروف البيئية المحيطة، سلوكياته وأوضاعه الصحية، مما يؤدي إلى مجموعة متنوعة من الأمراض. تهدف هذه الدراسة إلى تحديد نمط الأمراض المنتشرة بين مراجعي المراكز الصحية بمشعر منى خلال موسم الحج ١٤٢٨ (٢٠٠٨) مما قد يساهم في تحسين توزيع الخدمات الصحية بالمراكز الصحية بمشعر منى خلال موسم الحج.

اعتمدت هذه الدراسة الوصفية على السجلات الطبية لعينة عشوائية منتظمة لـ ٤١٣٦ مريض من ١٣ مركز صحي بمشعر منى خلال الفترة من ٨—١٢ من شهر ذو الحجة لعام ١٤٢٩ هـ (٢٠٠٨م) وقد تم تحديد عدد الاستمارات من كل مركز في كل يوم حسب إحصائيات المراكز لموسم حج ١٤٢٨ هـ.

اختلف ضغط العمل حسب المركز وحسب أيام العمل وقد سجل اليوم الحادي عشر أعلى عدد من الزيارات بينما سجل اليوم التاسع أدنى عدد. كان معظم المرضى يتوافدون على المركز خلال الفترة الصباحية (٥٨,٢٪). وكان غالبيتهم من الذكور (٧٠,٧٪)، في الفئة العمرية ٤٥-٦٤ سنة (٤٢,٨٪)، ومن الدول العربية (٤٤,٤٪) من غير السعوديين ومن دول جنوب آسيا (٢٧,٠٪).

الغالبية العظمى من المرضى (٧٩,٨٪) كانوا يعانون من مرض واحد، في حين كان ٢٠,٢٪ يعانون من أمراض متعددة مع متوسط عدد الأمراض لكل مريض من ١,٢:١ (± ٠,٤٤). أكثر الأمراض تسجيلا في المراكز كانت تلك التي تتعلق بالجهاز التنفسي (٦٠,٨٪)، ثم الجهاز العضلي والعظمي (١٧,٦٪)، والجلد (١٥,٠٪)، والجهاز الهضمي (١٣,١٪) بينما شكلت الأمراض المزمنة مثل داء السكري والربو وارتفاع ضغط الدم أقل من ٣٪ لكل منهم.

بالإضافة إلى أمراض الجهاز التنفسي التي مثلت العبء الرئيسي طوال فترة الدراسة، فقد كانت معظم الزيارات في اليوم الثامن والحادي عشر والثاني عشر بسبب أمراض الجهاز العضلي والعظمي وفي اليوم التاسع بسبب أمراض الجهاز الهضمي وفي اليوم العاشر بسبب الأمراض الجلدية.

كانت أمراض الجهاز التنفسي الأكثر شيوعا (٥٩,٣٪) بين جميع الجنسيات بينما تمثلت الأمراض الأخرى في جنسيات محددة فقد انتشرت أمراض الجهاز الهضمي بين السعوديين (١٩,٣٪) والأمراض الجلدية بين الجنسيات العربية الأخرى (٢١,٥٪) والقادمين من تركيا والبلدان المتقدمة (١٣,٩٪)، وأمراض الجهاز العضلي والعظمي بين الأفارقة غير العرب (٢٨,٩٪)، والقادمين من جنوب آسيا (٢١,٦)، والإيرانيين (١٩,٦٪) والقادمين من جنوب شرق آسيا (٦,٠٪).

من بين جميع المرضى، تلقى ١٩,٠٪ علاجا واحدا بينما تلقى ٨٠,٢٪ منهم علاجات متعددة حيث بلغ متوسط عدد العقاقير لكل مريض ٢,٣٥ (± ٠,٩٧)، وتمثلت أكثر الأدوية المصروفة في المسكنات وخافضات الحرارة (٧٩,٤٪)، تلتها المضادات الحيوية (٥٣,٩٪)، ثم الأدوية المضادة للسعال (٣٧,١٪).

أوصت الدراسة بضرورة توزيع الموارد حسب ضغط العمل بالمراكز الصحية والاهتمام بإرسال إحصائيات عن الأمراض والأدوية المصروفة والتركيز على التثقيف الصحي بشأن الأمراض الأكثر شيوعا سواء على المستوى المحلي أو الدولي.

– إعداد: د. عبدالله قينان الزهراني، د. عبدالجميل شودري، د. أسامة الحياني، د. محمد نجيب (برنامج الوبائيات الحقلي).

Pattern of diseases among visitors Mina Health Centers, Hajj 1429 H, cont..

(Continued from page 19)

statistically significant differences with a p value of less than 0.05 for each.

- *Reported by: Dr. Abdullah Alzahrani, Dr. Abdul Jamil Choudhry, Dr. Osamah Al-Hayani, Dr. Mohammed Naguib (Field Epidemiology Training Program).*

Editorial notes: The annual Islamic pilgrimage (hajj), of more than two million pilgrims (hajjis), is the largest mass gathering in the world. This mass gathering in a limited space and time expose hajjis to different risk factors.1 Overcrowding, climates, extra physical effort during ritual performance are the major risk factors to contract communicable diseases.2

Recent hospital based studies on the pattern of diseases during hajj have mostly been conducted among those requiring hospital care.3,4 However, PHCCs are the first level of care, are more accessible and distributed over Mina area. The total visits to Mina PHCCs during Hajj 1428H were reported as 287,756. In spite of this high number, the pattern of diseases has not been described.5

Although the study aimed at identifying the disease spectrum in Mina PHCCs, it also highlighted the utilization pattern of these first line health facilities. It described the variation of workload and the reasons behind it, in terms of frequent movement and settlement of the hajjis during their rituals performance; as evident at Muzdalifa center (M1). The detailed distribution of cases according to demographic characteristics, nationalities and geographical locations linked to diseases spectrum would be of great assistance in planning health service providers.

Reallocation of resources between PHCCs according to variable workload, recruitment of further female physicians to cope with the extra workload of female patients in some centers and provision of medications according to need in each center were recommended. Supervision is needed to ensure the completeness of prescription forms by the PHCCs reception staff and physicians, for accurate assessment of pattern of illness. Additional health facilities are needed in the Northwestern area of Mina and between Muzdalifah and PHCC 4 along the pedestrian pathway, which the study revealed were not covered with PHCCs.

Mark your calendar . . .

Inside the Kingdom

3 - 5 November 2009: The Future of Healthcare for Adolescents in Saudi Arabia.

Location: King Faisal Specialist Hospital & Research Center, Riyadh, Kingdom of Saudi Arabia.
Contact: Ms. Cecille Bernardo, Tel: +966-1-4427761 Fax: +966-1-4427784
E-mail: mbernardo@kfshrc.edu.sa

Outside the Kingdom

11 September 2009: 7th Annual Children's Health & Environment Conference

Location: The Mount Washington Conference Center, Baltimore, MD, United States.
Contact: Aurora Amoah. 5801 Smith Avenue, Suite 1101, Baltimore, MD 21209.
Tel: + 1-410-735 7964

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Selected notifiable diseases by region, Jul - Sept 2009

	Riyadh	Makkah	Jeddah	Madinah	Taif	Qassim	Eastern	Hasa	Hafr Al-batin	Asir	Bisha	Tabuk	Hail	Al-Shamal	Jizan	Najran	Baha	Al-Jouf	Goriat	Gonfuda	TOTAL
Measles	0	0	0	0	0	4	1	1	0	0	0	1	0	0	0	0	0	0	0	0	6
Mumps	0	0	2	0	0	21	0	0	0	0	0	0	0	0	5	0	0	0	0	0	28
Rubella	0	0	0	0	0	5	2	2	0	0	0	0	0	0	0	0	0	0	0	0	7
Varicella	648	46	171	109	172	596	466	466	120	732	214	64	30	72	68	294	2	103	36	28	4438
Meningitis mening.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Meningitis other	360	0	1	1	4	9	0	0	1	2	2	1	0	1	0	1	0	0	0	0	61
Hepatitis B	173	0	75	126	39	65	149	149	1	74	3	74	1	12	0	46	1	6	3	0	852
Hepatitis C	63	0	82	25	12	23	92	92	0	34	8	17	0	2	7	6	0	13	3	0	391
Hepatitis unspecified	1	0	0	0	0	0	3	3	0	7	0	3	0	0	3	0	0	0	0	0	19
Hepatitis A	16	3	10	10	0	7	7	7	2	29	11	20	0	5	10	29	4	2	0	0	171
Typhoid & paratyphoid	2	0	4	5	0	1	6	6	2	14	23	0	3	1	0	0	0	0	0	1	67
Amoebic dysentery	5	2	161	6	14	0	131	131	0	54	17	0	0	0	2	3	0	0	0	0	425
Shigellosis	4	0	0	0	0	1	5	5	0	0	0	4	0	0	0	0	0	0	0	0	19
Salmonelosis	137	0	2	2	0	5	120	120	4	4	7	6	0	3	2	42	0	5	0	2	372
Brucellosis	130	6	16	26	80	251	81	81	75	177	111	7	27	40	25	65	0	4	4	2	1135

Comparisons of selected notifiable diseases, Jul - Sept 2008 - 2009

DISEASE	Jul-Sep 2009	Jul-Sep 2008	Change %	Jan-Sep 2009	Jan - Dec 2008	DISEASE	Jul-Sep 2008	Jul-Sep 2007	Change %	Jan-Sep 2009	Jan - Dec 2008
Cholera	2	5	-60	3	7	Meningitis mening	0	2	-100	3	7
Diphtheria	0	0	0	1	0	Meningitis other	61	121	-50	182	299
Pertussis	5	7	-29	20	30	Hepatitis B	852	1055	-19	2301	5066
Tetanus,neonat	0	2	-100	1	13	Hepatitis C	391	729	-46	1067	2733
Tetanus,other	1	0	100	2	4	Hepatitis unspecified	19	186	-90	103	255
Poliomyelitis	0	0	0	0	0	Hepatitis A	171	535	-68	544	1678
Guilain Barre Syndrome	4	27	-85	22	121	Amoebic dysentery	67	78	-14	164	269
Measles	6	9	-33	27	158	Amoebic dysentery	425	697	-39	1337	3311
Mumps	28	3	833	50	31	Shigellosis	19	50	-62	47	188
Rubella	7	3	133	7	15	Salmonelosis	372	464	-20	724	1292
Varicella	4438	6651	-33	17245	60007	Brucellosis	1135	993	14	2949	3447

Diseases of low frequency, Jul – Sept 2009

Yellow fever, Plaque, Poliomyelitis, Rabies, Neonatal Tetanus, Ecchinoccocosis: No Cases
Pertussis: 5 Cases (Qassim)
Guillian Barre Syndrome: 4 Cases (Riyadh 1, Madinah 1, Qassim 1, Eastern 1)