



النشرة الوبائية السعودية Saudi Epidemiology Bulletin



ISSN : 1319-3965

www.fetp.edu.sa

نشرة فصلية متخصصة في مجال الوبائيات تصدر عن وزارة الصحة ، وكالة الوزارة للصحة العامة ، برنامج الوبائيات الحقلية

Saudi Epidemiology Bulletin (SEB) is published quarterly by the Deputy Ministry for Public Health and the Field Epidemiology Training Program (FETP) of the Ministry of Health

Volume 19, Issue No. 3, July / Sep. 2012

المجلد التاسع عشر - العدد الثالث - يوليو / سبتمبر ٢٠١٢م



INDEX

- Behavioral risk related to food practices among non-domestic Arab hajjis 1432 H (2011 G) 26
- Pattern of non-communicable diseases among domestic hajjis from Qatif and effect of Hajj, 1432 H (2011) 29
- Behavioral Risk Factors among Omani hajjis during hajj season 1432 H (2011 G) 32
- Notifiable Disease Reports 36

Behavioral risk related to food practices among non-domestic Arab hajjis 1432 H (2011 G)

H Hajj season is one of the important occasions where millions of people gather in a relatively small area for a few days, which can increase the risk for many diseases including food poisoning. A cross sectional study was conducted among Arab and Gulf country hajjis arriving from outside Saudi Arabia for Hajj 1432 H, to identify their food behavioral risk factors and assess their level of hygienic practices related to food. A sample was selected after dividing the site of hajjis into three groups for Arab hajjis and two groups for gulf countries, which was then divided into 116 squares according to the Mina map; 19 clusters were selected from these squares and 32 hajjis from each cluster were asked to participate in this study. The questionnaire covered information about demographic data of the hajji, source of food and water, preparation, keeping, and serving of food, all practices related to food before and after preparation, consumption of food during hajj and hygienic practices related to food and drink.

A total of 608 of non-domestic Arab hajjis participated in this study, representing three geographical regions, mostly from North Africa 416 (68.4%), followed by GCC countries and Yemen 124 (20.4%), then Eastern Mediterranean countries 68 (11.2%). The majority were males (86.3%), with ages ranging from 17 to 81 years (mean 44.8). Over two thirds (69.1%) were performing Hajj for the first time; 56.3% had an education level of university and above, and 8.4% had less than elementary school education.

Almost two thirds of the study participants obtained their food from their camps (62.8% in Mina and 65.1% in Arafat). However, 21.7% of participant hajjis in Arafat and 11.3% in Mina obtained their food from street vendors. (Table 1) More than a third of the

participant hajjis carried food during movement between holy places in hajj, 44.7% kept their food in plastic bags. Among participants 7.1% used their hands most of the times to eat from a common large plate shared by several persons and only 10% used a spoon most of the time.

Almost half the hajjis had eaten three meals or more in the last 24 hours prior to the survey (241; 48.0%), whereas the majority reported drinking less than five bottles of water per day (around two liters). The majority of the participant hajjis used bottles and plastic bags for drinking and for preparing tea and coffee. The majority also used a shared tanker or water cooler, others used their own cup or bottles (47.0%), whereas 12.8% used their hands and 15.5% used any available cup or bottle.

Table 1: Sources of food consumed at Mina and Arafat among non-domestic Arab hajjis, Hajj 1432 H. (N=608)

Source of food	Mina		Arafat	
	No	%	No	%
Organized group/camp management	382	62.8	396	65.1
Food Cooked by Hajj himself	53	8.7	78	12.8
Street vendors	69	11.3	132	21.7
Food brought with pilgrims from their country	34	5.6	0	0
Restaurants	70	11.5	2	0.4

Regarding hand hygiene, over half (327; 53.8%) reported washing their hands with soap before eating most of the time, and (442; 72.7%) washed their hands with soap after using toilets most of the time.

Personal hygiene for most of the participants was acceptable and the overcrowded toilets during hajj season were responsible for the deficiencies in hygiene. The study showed that using street vendors and restaurants was lower among the higher educated hajjis, whose main source of food was hamlas both in Mina and Arafat (75.7% & 78.4%, respectively). Most of the participants in this study used a safe source for eating and drinking during hajj season.

- Reported by: Dr. Ibraheem M. Al-Naheelah, Dr. Mohammad A. Al-Mazroa, Dr. Abdullah G. Alzahrani (Field Epidemiology Training Program)

Editorial notes: The annual Islamic pilgrimage (hajj), consisting of over two million pilgrims (hajjis) per year, is the largest mass gathering in the world. It is one of the important and rare situations where millions of people accumulate in a relatively small area for a few days, which exposes hajjis to different risk factors. Overcrowding, varying climates, and extra physical effort during ritual performance are major risk factors. Some differences in certain behaviors are seen among hajjis as a result of variations in age, nutritional and educational status, beliefs and lifestyles, while similarities were found in other behaviors because of sharing the same conditions at the same place with similar services.¹

Food borne disease is one of the most common health problems during hajj.² During the period from 1992 to 2004, the number of reported number of food poisoning outbreaks ranged from 44 to 132.³ Diarrhea was the third most common cause for hospitalization during hajj in 2002.⁴

Hamla was the main source of food for most of the hajjis in this study, which is compatible with results of a previous study conducted in 1428 H, that showed that 79% of the hajjis depended on hamla food.⁵

Globally, street vendors are still one of the most common places responsible for food poisoning because they have a higher risk of contamination of food. A study conducted in Nigeria in 2011 investigating the bacteriological quality of foods and water sold by vendors and in restaurants, showed that the level of coliform contamination in the food samples were above the accepted 104 colony-forming unit/g.⁶

Our study showed that the percentage of obtaining food from street vendors during hajj season declined from 16.8% in 1422 H to 11.3% in Mina this year. The improvement of services provided by camps to hajjis is one of the most possible causes of this decline. The percentage of hajjis who obtained their food from street vendors was higher in Arafat (21.7%) because some hajjis leave their camps during the day in Arafat and walk to Muzdalfah later, thus purchasing their food on their way.

The study also showed good hygienic practices regarding serving food, such that over a half of the participants used disposable dishes and did not use their hands or spoons to eat from a common plate. This finding is compatible

with another study conducted in Makkah during Hajj 1428 H, to assess the hygienic quality of food, food handlers and restaurant environments, that showed the majority of food facilities (44.3%) were using disposable crockery.⁵

The majority of the hajjis used bottles and plastic bags for drinking and for preparing tea and coffee. However, 54.4% reported drinking less than two liters of fluid in the 24 hours preceding the survey compared with 83% of hajjis in 1428 H, which was lower than the minimum recommended daily amount of fluid intake (about 2 Liters per day). Taking less than the normal requirements of fluid may lead to dehydration and complications. In a hajj study conducted in 2010, most of the participants who reported drinking less than the recommended amount of fluids mentioned the cause as to avoid going to the toilets.⁷

Most of the participants in this study used a safe source for eating and drinking. Personal hygiene for most of the participants was acceptable and the overcrowded toilets were responsible for the deficiencies in hygiene among others. Higher level educated hajjis and Arabian Gulf countries seemed to have lower risk behaviors compared with other factors.

However, it appears that the behavioral risk related to food practices among non-domestic Arab hajjis did not depend on personal hygiene and education only, but also depended on services provided by the Hamlas. Despite the low percentage of hajjis who obtained their food from street vendors compared with previous studies, there remains a need for technical and legal assistance to manage the risks associated with food and water, since the high volume of street

food vendors can give rise to important public health risks associated with food and water at mass gatherings.

References

1. Gatrad AR, Sheikh A. Hajj: journey of a lifetime. *British Medical Journal*. 2005; 330(7483):133-7.
2. Valerio L, Arranz Y, Hurtado B, Roure S, Reina MD, Martínez-Cuevas O, et al. Epidemiology and risk factors associated with religious pilgrimage to Saudi Arabia. Results of a prospective cohort 2008-2009. *Gaceta sanitaria* 2012; 26(3):251-5.
3. Al-Mazrou Y. Food poisoning in Saudi Arabia Potential for prevention. *Saudi Medical Journal*. 2004 Jan; 25(1):11-4.
4. Ministry of Health. Food Poisoning Accidents during the years 1421-1422. Annual Report. Riyadh (KSA): Food Poisoning Department, Ministry of Health; 2002.
5. Al-Honazil I, Choudhry AJ, Alhyani O. Assessment of Hygienic Quality of Food, Food Handlers and Restaurant Environments in Makkah during Hajj 1428 H. *Saudi Epidemiology Bulletin*. 2008; 15(4):27.
6. Nkere CK, Ibe NI, Iroegbu CU. Bacteriological quality of foods and water sold by vendors and in restaurants in Nsukka, Enugu State, Nigeria: a comparative study of three microbiological methods. *Journal of Health, Population, and Nutrition*. 2011; 29(6):560-6.
7. Memish ZA. The Hajj: communicable and non-communicable health hazards and current guidance for pilgrims. *Euro Surveill*. 2010; 15(39):1967.

المخاطر السلوكية المتعلقة بالممارسات الغذائية بين الحجاج العرب خلال موسم حج ١٤٣٢ هـ

المشاعر. كان ١٢,٨% يستخدمون كف اليد للشرب و ١٥,٥% كانوا يستخدمون اي اثناء متاح عند البرادة.

فيما يخص النظافة الشخصية المتعلقة بالغذاء، فقد اكد ٧٢,٣% على المحافظة الدائمة على غسل اليدين بالماء والصابون بعد استخدام دورات المياة بينما اكد ٥٣,٢% على غسل اليدين بصورة دائمة قبل تناول الطعام.

أظهرت الدراسة ان الحجاج القادمين من دول مجلس التعاون كانوا أقل عرضة لمخاطر الغذاء اثناء الحج حيث ان نسبة كبيرة منهم (٨٢,٢%) كانوا يعتمدون على الطعام المعد من قبل الحملة فقط مقارنة بحجاج المناطق الجغرافية الأخرى. وكذلك مستوى التعليم المتقدم انعكس بصورة إيجابية على النظافة الشخصية و الممارسات الصحية المتعلقة بالغذاء.

بينت الدراسة ان مصادر الغذاء والشرب الرئيسية في تحسن مطرد مقارنة بالدراسات السابقة. كما أوضحت نتائج الدراسة انخفاض اعداد الحجاج الذين يتناولون الطعام المعد من قبل الباعة المتجولين خلال موسم الحج. وعلى الرغم من تزايد أعداد الحجاج من سنة لأخرى فقد أظهرت الدراسة وجود اهتمام بالنظافة الشخصية المتعلقة بتناول الطعام بين الكثير منهم ويبرر الزحام الشديد على المرافق العامة القصور لدى البعض الآخر.

تم التوصية على تعزيز برامج التثقيف المتعلقة بسلامة الغذاء بين الحجاج و تحسين الخدمات التي يتم توفيرها من قبل الحملات و التنسيق مع الجهات الحكومية الأخرى المساهمة في الحج للرفي بسلامة صحة الحجاج.

إعداد: د. ابراهيم محمد آل نحيه، د. محمد عبد العزيز المزروع ، عبدالله قينان الزهراني (برنامج الوبائيات الحقلية)

■ يعتبر الحج اكبر المناسبات الدينية على وجه المعمورة، و يفد سنويا أكثر من مليوني مسلم الى المملكة العربية السعودية خلال موسم الحج. تجمع هذه المناسبة الدينية الملايين من الحجاج في بقعة صغيرة وخلال فترة زمنية محددة، في ظروف مناخية متفاوتة مما تشكل عوامل خطورة في حدوث الكثير من الأمراض منها التسمم الغذائي. وقد تراوحت اعداد الفاشيات المبلغ عنها بين ٤٤ الى ٢٣١ فاشية خلال الفترة من عام ٢٩٩١ الى ٤٠٠٢ م، كما سجلت حالات الإسهال احد أهم الأعراض المرضية المنتشرة في الحج حيث جاءت في المرتبة الثالثة بين الأعراض الأكثر شيوعا خلال موسم حج عام ٢٠٠٢. أجريت هذه الدراسة للوقوف على اهم المخاطر السلوكية المتعلقة بالممارسات الغذائية بين الحجاج لتحديد السلوكيات التي قد تتسبب في التسمم الغذائي، كما هدفت إلى تقييم مستوى الممارسات الصحية المتعلقة بالغذاء بين الحجاج العرب خلال موسم حج ٢٣٤١ هـ.

سيراً على الأقدام، بينما جمع الياقون بين السير واستخدام وسائل النقل من حين لآخر (٣٦,٨%).

مثل الطعام المعد من قبل مخيمات الحجاج (الحملات) المصدر الأهم والأكثر استخداما بين حجاج الدول العربية بنسبة ٦٣% في منى و ٦٥% في عرفات. وقد ذكر ١١,٣% انهم حصلوا على الطعام من الباعة المتجولين في مشعر منى و ٢١,٧% في عرفات.

كما أظهرت الدراسة ان ٥,٦% من الحجاج كانوا يتناولون الطعام المطهي مباشرة دون الحاجة لحفظه بينما ٣,٨% قاموا بحفظ طعامهم لفترات تزيد عن الساعتين او اكثر. لم يسجل سوى ١٩,٥% الاستخدام الآمن لحمل الطعام في حافظات خاصة به.

بالنسبة للممارسات الخاصة بتناول الطعام، بينت الدراسة ان غالبية الحجاج يمتنعون عن تناول الطعام من أوعية مشتركة. كما ذكر ٤٨,٠% انهم قد تناولوا ثلاث وجبات على الأقل خلال ال ٢٤ ساعة السابقة، في حين أن الغالبية العظمى ذكروا انهم شربوا أقل من خمس زجاجات (حوالي ٢ لتر) في اليوم الواحد، وكانت القوارير المعبأة هي الأكثر استخداماً. وقد حرصت نسبة عالية من الحجاج على استخدام اكواب او قوارير خاصة بهم عند الشرب من البرادات المنتشرة في

أجريت الدراسة بواسطة المسح المقطعي بتوزيع استبانات الدراسة على عينه من الحجاج أثناء تواجدهم في منى. وقد اشتملت هذه الاستبانة على أسئلة عن البيانات الديموغرافية للحجاج، إضافة إلى معلومات تختص بالغذاء من حيث مصدره وطرق اعداده و حفظه، و طرق تناوله. كما شملت الاستبانة مصادر المياة المستخدمه بين الحجاج وطرق الشرب المتاحة و بعض النقاط الهامة المتعلقة بالسلوك الخاص بالنظافة العامة. وقد أجريت الدراسة في منى في يومي العاشر والحادي عشر من ذي الحجة لعام ١٤٣٢ هـ.

شملت الدراسة ٦٠٨ حاجاً يمثلون ثلاثة مناطق جغرافية وهي شمال افريقيا وشرق حوض البحر المتوسط و دول الخليج العربي واليمن. أكثر من ثلثي المشاركين كانوا من شمال أفريقيا، والغالبية العظمى من الذكور بنسبة ٨٦,٣%، أعمارهم تتراوح من ١٧ الى ٨١ عاما (متوسط ٤٤,٨)، ٦٩,١% كانوا يؤدون الحج للمرة الأولى. كان ٥٦,٣% منهم في مستوى التعليم الجامعي او اعلى ، بينما ٨,٤% في مستوى اقل من التعليم الابتدائي. اظهرت الدراسة ان ٥٦,٤% استخدموا وسائل النقل المتاحة في الحج خصوصا عن طريق الباصات، كما تنقل ٦,٧% من الحجاج بين المشاعر

Pattern of non-communicable diseases among domestic hajjis from Qatif and effect of Hajj, 1432 H (2011)

Non-communicable diseases (NCDs) are among the most increasing health problems globally.^{1,2} Recent studies have revealed that NCDs contribute significantly to morbidity and mortality during Hajj.^{3, 4, 5} This study was conducted among domestic hajjis from Qatif to assess the pattern of NCDs and investigate the effect of Hajj on their NCDs status, in addition to the frequency of injuries among them during hajj.

A cross-sectional study was conducted among domestic hajjis from Qatif registered in seven selected Hamlas. A two part questionnaire was used to collect the information. The first part was a self administered questionnaire and was distributed and collected during the pre-Hajj orientation meetings held by the hamlas. It contained the basic demographic information, contact information and disease status at the time of recruitment before travelling to Hajj. The second part was a telephone-based interview which was conducted after Hajj by trained interviewers over a three week period. It aimed to elicit information on hajjis experience related to their NCD status. A simple random sampling technique was used to identify 7 hamlas from all the hamlas who operate from Qatif. Within each identified hamlas, all Hajjis were contacted and requested for participation.

In the first part of the study, a total of 770 hajjis were recruited, where 194 (25.2%) had NCDs. In the second part of the study 602 hajjis were traceable after hajj through the telephone interview where 136 (22.6%) suffered from NCDs, within whom 38 (27.9%) had co-morbid conditions. The most common encountered NCDs were the same in part one and two with minor difference in their order; the frequency of NCDs order after hajj was hypertension (33.8%),

diabetes mellitus (18.4%), glucose 6-phosphate dehydrogenase deficiency (G6PDD) (14.7%), bronchial asthma (14.0%) and sickle cell disease (10.3%).

Only 56 (41.2%) of NCDs hajjis had performed medical examination before hajj and only 41 (30.2%) had worn a bracelet showing their name and diseases all the time during Hajj. Most of them had been able to follow their dietary and medication management.

A large proportion of NCDs hajjis had a positive perception of controlled disease before and during Hajj (73.5% and 81.6% respectively), which was higher among males. The most common perceived reasons behind uncontrolled disease during Hajj were excessive physical activity (28.0%) and presence of fumes in the surrounding environment (24.0%). The most common reported symptoms were shortness of breath (36.0%), limb pain (24.0%) and drowsiness (24.0%).

All hajjis who sought health facility had sought hamla's doctor (76.0%), of whom (12.0%) had also needed hospital care.

Only 6.5% of participant hajjis reported injuries, most were cut wounds (56.4%) which were higher among males, followed by contusions (43.6%), which were higher among females. Most of these inju-

ries occurred by getting crushed and trampled by the crowds (35.8%), or by stone throw (28.2%).

- Reported by: Dr. Ghadeer Al-Ghareeb, Dr. Randa Nooh (Field Epidemiology Training Program).

Editorial notes: A stable routine life style is required for adequate control of NCDs; therefore, if a patient's life routine changes, as in Hajj, their disease would predictably be affected.³ This study showed that the frequency of NCDs among hajjis before hajj was 25.2% and was slightly lower among post-hajj respondents (22.6%). Among post-hajj respondents, less than one third (27.9%) had co-morbid conditions. This result is lower than in a study conducted in 2006 among hospitalized domestic and international hajjis, which showed that more than one third of participants (39%) had co-morbid conditions.⁴

In this study, if haemoglobinopathies, known to be of high prevalence in Qatif, are excluded, the top three NCDs among the sample would be hypertension (31.4%), diabetes mellitus (15.5%) and bronchial asthma (13.4%). This agrees with other published studies conducted during Hajj.^{5, 6}

Although medical examination before Hajj is mandatory for NCD patients to assess their health status and to adjust their medication according to the expected different life style, in this study medical examination before Hajj was reported by only 41.2% of NCDs hajjis.³

During Hajj, identification of NCDs Hajjis is important for any

required first aid or emergency. Although MOH spends considerable effort to increase people awareness regarding this issue through distribution of media messages to most Saudi residents before Hajj, this study showed that less than one third of NCDs hajjis wore a bracelet showing their name and disease during Hajj.

Regarding hajjis' perception of their disease/s control during Hajj, 81.6% believed they had controlled disease/s, i.e they did not develop symptoms related to their disease/s. The most common symptoms complained by NCDs patients who had perceived uncontrolled diseases were shortness of breath (36.0%), limb pain (24.0%) and drowsiness (24.0%). In comparison, another study reported that the most common symptoms encountered among hospitalized patients during hajj were dyspnea (53%), cough (49%), fever (47%) and disturbed consciousness (24.4%).⁶ The reason of discrepancy between the results is most likely due to this study describing the pattern of symptoms among a general population, while the latter represented those among hospitalized patients.

In this study, all hajjis who sought health facility for their health problems (76.0%) had sought hamla's doctor, and only 3 (12.0%) needed additional hospital care. Although availability of hospital care during Hajj is mandatory to solve diseases complications, it was needed by only a small proportion of patients.

In this study, injury was reported by 6.5% of the participant hajjis, which is lower than reported in 2003 that showed a prevalence of 9.4% for injury among hospitalized hajjis.⁴ Although, injury had a

high prevalence as a hospitalization cause, none of our study participants required hospitalization during hajj and fortunately all of them completed their hajj. This reflects the over estimation of the hospital based studies comparing to population based studies.

The result of this study revealed that health education for hajjis regarding performance of pre-Hajj medical examination and introduction of pre-Hajj clinic are important to decrease the prevalence of uncontrolled NCDs during Hajj. There is a need to increase hajjis awareness regarding wearing a bracelet that contains NCDs and involvement of hamlas in this task. More organization is recommended during hajj to prevent any acquired injuries.

References:

- 1- Alamoudi O, Attar S, Ghabrah T, Al-Qassimi M. Pattern of Common Diseases in Hospitalized Patients at an University Hospital in Saudi Arabia; A Study of 5594 Patients. *JKAU: Med Sci.* 2009; 16 (4): 3-12.
- 2- Projections of mortality and burden of disease to 2030. Geneva (CH): World Health Organization; Available at: http://www.who.int/healthinfo/global_burden_disease/2004_report_update/en/index.html. Accessed December, 2008
- 3- Beshyah S, Sherif I. Care for people with diabetes during the moslem pilgrimage (Haj) an overview. *Libyan J Med.* 2008; 3 (1): 39-41.
- 4- Madani T, Ghabrah T, Al-Hedaithy M, Alhazmi M, Alazraqi T, Albarrak A et al. Causes of hospitalization of pilgrims in the Hajj season of the Islamic year 1423 (2003). *Annals of Saudi medicine.* 2006; 26 (5): 346-351
- 5- Khan N, Ishag A, Ahmad M, El-Sayed F, Bachal Z, Abbas T. Pattern of medical diseases and determinants of prognosis of hospitalization during 2005 Muslim pilgrimage Hajj in a tertiary care hospital. A prospective cohort study. *Saudi Med J.* 2006; 27 (9): 1373-1380.
- 6- Al-Ghamdi S, Akbar H, Qari Y, Fathaldin O, Al-Rashed R. Pattern of admission to hospitals during muslim pilgrimage (Hajj). *Saudi Med J.* 2003; 24 (10): 1073-1076.

Table 1: Distribution of NCDs among hajjis returning from Hajj, 1432 H

Disease	No. (n = 136)	%
Hypertension	46	33.8
Diabetes mellitus	25	18.4
G6PDD*	20	14.7
Bronchial asthma	19	14.0
Sickle cell disease	14	10.3
Dyslipidemia	8	5.9
Obesity	8	5.9
Cardiac diseases	8	5.9
Thyroid disease	5	3.7
Irritable bowel syndrome	5	3.7
Renal disease	5	3.7
Other	21	15.4

* G6PDD: glucose 6-phosphate dehydrogenase deficiency

نمط الأمراض غير المعدية والإصابات بين حجاج الداخل من القطيف وتأثير الحج عليها، ١٤٣٢ هـ (٢٠١١)

قد تعرضوا لإصابات أثناء الحج، معظمها جروح قطعية (٤, ٥٦%) والتي كانت أعلى بين الذكور، يليها الكدمات (٦, ٤٣%) والتي كانت أعلى بين الإناث. معظم هذه الإصابات وقعت بواسطة السحق أو الدهس (٨, ٣٥%) أو الرمي بالجمرات (٢, ٢٨%).

أظهرت الدراسة ان تقريباً ربع حجاج القطيف مصابين بالأمراض غير المعدية وكانت أكثر الأمراض شيوعاً ارتفاع ضغط الدم و السكري والربو إلى جانب مرض فقر الدم المنجلي ومرض نقص الخميرة . وكانت الأمراض غير المعدية هي أكثر الأمراض غير المتحكم بها خلال موسم الحج.

تم التوصية على تشديد أهمية التثقيف الصحي للحجاج فيما يتعلق بالفحص الطبي ما قبل الحج ، وانشاء عيادة ما قبل الحج بمراكز الرعاية الصحية الأولية للتأكد من فحص الحالة الصحية للحجاج قبل توجههم لأداء الفريضة ، وتقديم التثقيف الصحي فيما يتعلق بالمشاكل الصحية التي قد يواجهونها. كما تم التوصية على العمل على زيادة وعي الحجاج حول أهمية ارتداء سوار المعصم أو بطاقة تحتوي على اسم الأمراض غير المعدية التي يعاني منها بجانب اسمه وإشراك الحملات في هذه المهمة ، وتشجيع جميع الحملات على توفير كادر طبي خاص بالحملة و الذي يمكنه ان يقلل العبء على المستشفيات . كما يوصى بالمزيد من التنظيم أثناء موسم الحج للحد من وقوع الإصابات.

إعداد: د. غدير الغريب، د. رانده نوح (برنامج الوبائيات الحقلية)

تعتبر الأمراض غير المعدية من بين المشاكل الصحية السائدة و الأكثر شيوعاً عالمياً، كما انها تساهم بشكل كبير في معدلات المراضة والوفيات خلال موسم الحج، حيث يحدث العديد من العوامل التي قد تؤدي الى مخاطر صحية، بما في ذلك عدم تحكم مرضى الأمراض غير المعدية بأمراضهم. هدفت هذه الدراسة إلى تقييم نمط الأمراض غير المعدية و تأثير الحج على حالتهم المرضية و حدوث الاصابات بين حجاج الداخل من القطيف.

الحجاج الذين استجابوا بعد الحج كانت كالتالي: ارتفاع ضغط الدم (٨, ٣٣%)، داء السكري (٤, ١٨%)، مرض نقص الخميرة (٧, ١٤%)، الربو (٠, ١٤%)، مرض فقر الدم المنجلي (٣, ١٠%).

أظهرت الدراسة انه من بين الحجاج المصابين بالأمراض غير المعدية، ٥٦ (٢, ٤١%) فقط أجري لهم فحصاً طبياً قبل الحج، و ٤١ (٢, ٣٠%) فقط لبسوا سوار المعصم الذي يظهر اسم المريض ومرضه خلال موسم الحج. معظم الحجاج استطاعوا اتباع كل من العلاج الغذائي و الدوائي أثناء الحج. وكان هناك نسبة كبيرة من الأمراض غير المعدية لهؤلاء الحجاج متحكم بها قبل و أثناء موسم الحج (٥, ٧٣% و ٦, ٨١% على التوالي)، وقد كان التحكم بالأمراض أعلى بين الذكور. أكثر الأسباب شيوعاً وراء عدم التحكم بالمرض خلال موسم الحج كانت النشاط البدني المفرط (٠, ٢٨%) و وجود الدخان و الأبخرة في البيئة المحيطة (٠, ٢٤%).

أكثر الأعراض شيوعاً كانت ضيقاً في التنفس (٠, ٣٦%)، آلام في الأطراف (٠, ٢٤%)، والدوار (٠, ٢٤%). جميع الحجاج الذين لجأوا لمرافق صحية للعلاج كانوا قد لجأوا إلى طبيب الحملة مسبقاً (٠, ٧٦%)، ومن بينهم احتاج (٠, ١٢%) إلى رعاية صحية بالمستشفى. ذكر ٦, ٥% فقط من الحجاج انهم

أجريت دراسة مقطعية (cross-sectional study) بين حجاج الداخل من القطيف و المسجلين في سبع حملات مختارة. تم اختيار الحملات بواسطة التقنية العشوائية التقدمية البسيطة و من ثم طلب المشاركة من جميع الحجاج المشتركين بالحملات المختارة . تم استخدام استبيان مكون من جزئين لجمع المعلومات، بحيث يعبأ الجزء الأول ذاتياً بواسطة الحاج و ذلك خلال جلسات التوجيه المعقودة من قبل الحملات قبل الحج ، و يحتوي على المعلومات الاجتماعية والديمغرافية وارقام الاتصال وحالة الحاج المرضية. أما الجزء الثاني فقد جمع بعد الحج عن طريق المقابلة الهاتفية بواسطة مقابلات مدربات و ذلك خلال فترة ثلاثة أسابيع بعد العودة من الحج. واشتمل هذا الجزء على تجربة الحجاج المصابين بالأمراض غير معدية وتأثير الحج على حالتهم المرضية.

كان مجموع الحجاج الذين شاركوا في الجزء الأول من الدراسة ٧٧٠ حاج، بينهم ١٩٤ (٢, ٢٥%) مصابون بالأمراض غير المعدية . أما في الجزء الثاني من الدراسة كان مجموع الحجاج المشاركين هو ٦٠٢، بينهم ١٣٦ (٦, ٢٢%) مصابون بالأمراض غير معدية، بينهم ٣٨ (٩, ٢٧%) لديهم أكثر من مرض غير معدي. الأمراض غير المعدية الأكثر شيوعاً بين

Behavioral Risk Factors among Omani hajjis during hajj season 1432 H (2011 G)

Mina is a holy place where more than 2 million hajjis camp for at least 3 days during Hajj. The objectives of this study were to estimate the health related behavioral risk factors (BRF), to study the relationship of these BRF with certain demographic characteristics and to estimate self reported health problems among Omani hajjis during Hajj 1432 H (2011 G).

A cross-sectional survey was conducted among Omani hajjis in Mina, using a self-administered questionnaire. Sampling was done by single stage stratified random cluster sampling technique based on geographical mapping.

A total of 500 hajjis participated in the study, with a mean age of 39.05 years. Of the total, 73.6% male and 26.4% female, 59.2% were performing Hajj for the first time, and 75.2% had reached hajj area two weeks before the time of our study. The educational level of more than half of hajjis 291(58.2%) were below university, 137 (27.6%) were university graduates and 71(14.2%) were illiterate.

Most of the Omani hajjis 358 (71.6%) moved between hajj rituals by both bus and car and on foot, while 43(8.6%) used foot only for transport. There was also a statistically significant association between age group and means of transportation ($P=0.001$). Among those who walked only during hajj rituals, 7(9.9%) and 26(8.9%) were illiterate and below university level respectively. There was statistically significant association between educational level and means of transport ($p=0.001$).

Hamla was the main source of cooked food in Mina, but 13% kept leftover food for more than two hours before consumption. Only 3% of the female hajjis kept food >2 hrs before consumption compared to males 16.6%, and there was statistically significant association between gender and keeping food for more than 2 hrs ($P=0.001$).

Over half of the hajjis (56.8%) had eaten three meals and 64.4% had drank more than 2 liters of fluid in the 24 hours prior to the survey. Regarding the sources of the drinking water, 11.8% reported drinking water from

water coolers or water tanker, and 75.6% from plastic bottles or plastic bags water.

Regarding use of face mask, 275 (55%) used face mask either sometimes 220 (44%) or most of the times 55 (11%). Male hajjis (57.6%) wore face mask more often than females (47.7%), and there was a statistically significant association between gender and wearing face mask ($P=0.047$). Hajjis who were educated university and above (65.2%) wore face mask more than others and there was statistically significant association between educational level and wearing face mask ($p=0.002$).

Regarding head shaving, 62.8% had shaved their head by razor blade, 9.4% had used hair trimmers or machines, and 27.8% had used scissors. Among male hajjis who cut or shaved their heads, only 45.6% had their hair cut by a professional barber, while the rest by non professional barbers, mostly (39.9%) other hajjis at the camps. The main reasons indicated for not having the hair cut at barber-shops were crowdedness and high cost. Among hajjis who used a razor blade, 82% had 1-3 cut wounds in their scalp, 15.7% had 4-7 cut wounds and 2.3% had 8-10 cut wounds.

In general, hajjis slept very little during the 2 days of the study, the mean number of sleeping hours during last 24 hours was 4.76 hrs. Over half of the hajjis 339 (67.8%) had slept under 6 hours, 67.7% of whom were male. Around 68.2% of females slept under 6 hrs compared to males, and there was a statistically significant difference between gender and sleeping hours ($P=0.016$).

Among all hajjis 21.8% walked without shoes, either sometimes (15.2%) or most of the time (6.6%). Most male hajjis 81.3% never walked

without shoes compared to 69.7% among females. There was a statistically significant difference between walking without shoes and gender ($P=0.014$).

Out of the total Hajjis, 360 (72.0%) performed Rami Jamarat (throwing stones at Jamarat) from the ground level 66.3% of them were male, 93(18.6%) from the upper level, and 17(3.4%) from more than one level. There was statistically significant difference between gender and place of stone throwing at jamarat ($P=0.001$).

Being hit on the head by pebbles thrown at Jamarat was reported by 98 (19.6%), and there was a statistically significant difference between gender and being hit by a stone ($P=0.001$).

Among all hajjis 30 (6%) reported a cut injury on their feet, 6.5% were male and 9.5% were female, but there was no statistically significant association between gender and feet cut wound ($P=0.412$). Foot injury was caused by wheelchair (40%), glass (30%), razor blade (23.3%) or nail (6.7%).

Only 64 (12.8%) hajjis suffered from insect bites. Males were bitten by insects more often (15.2%) than females (6.6%), and there was no statistically significant association between gender and being bitten by insects ($P=0.566$).

Of all hajjis, 85% had been vaccinated against meningococcal meningitis, but only 61.6% within the recommended period (10 days – 3 years); 84% had been vaccinated against influenza, but only 59.6% within the recommended period.

The proportions of hajjis who were suffering from acute or chronic problems were 66% and 17.2% respectively. Among those with chronic diseases, 72.1% had brought their needed medication with them. Joint diseases were the most common chronic medical problem (7.6%), followed by diabetes mellitus (6.4%), hypertension (5.2%), respiratory diseases (2%), heart problems (0.8%) and hepatitis (0.8%).

Regarding acute conditions, 66% reported suffering from at least one; the most frequent was cough and sore throat (47%), followed by weakness (21.4%), fever (11.2%), abdominal pain (9.8%), constipation (7.8%), dizziness (5.8%), diarrhea (4.6%), injury (0.8%) and loss of consciousness (0.2%). (Figure8)

When hajjis were asked to rate the water supply and toilet facilities, 61.4% of hajjis rated the water supply facilities as good, 32.4% rated it as satisfactory and 6.2% as poor. University and above educated hajjis (12.3%) rated water supply as poor compared to other educational levels and there was statistically significant association between educational level and water supply (P=0.012).

However, satisfaction was much lower regarding toilet facilities, with 32.4% rating it as poor; 34% of male hajjis rated toilet facilities as poor compared to females (28%) and there was statistically significant association between gender and approval of toilet facilities (P=0.001).

Comparing with previous BRF studies, this study showed improvement in some of the hajjees health behaviors, such as the increase in proportion of hajjes eating cooked food supplied by Hamla and drinking sealed water, vaccination against meningococcal meningitis, influenza and use of face mask during hajj. However the study showed some results that should attract more attention like low proportion of hajjis who have valid meningococcal meningitis vaccinations, and those cutting their hair by professional barbers. Also the study showed a high proportion of hajjis with acute medical problems.

- Reported by: Dr. Salem Albusaidi, Prof. Ashry Gad Mohammed, Dr. Abdullah Alzahrani (Field Epidemiology Training Program)

Editorial note: Hajj is one of the five pillars of Islam and is a religious obligation for adult Muslims, who are physically and financially able. Each year, over two to three million Muslims from around the world gather in Makkah, making Hajj the largest annual gathering of its kind in the world.^{1, 2} Hajj is therefore a suitable time for transmission of serious dis-

eases.

The emphasis on the risk of transmission of meningococcal meningitis during Hajj is a result of many reported outbreaks, in Makkah or across the world, which were associated with Hajj,³ which dictate the maintenance of high vaccination coverage rates against the disease, in addition to other preventive measures, in order to prevent their recurrence. This year an overall vaccination proportion among Omani hajjis of 85% was observed, which may be considered as reasonable. Meningitis vaccination requires at least 10 days to produce adequate immunity, which lasts for about 3 years.⁴ However, with regards to the appropriate timing of receiving the vaccine, coverage was low, since only 61.6% of hajjis had been vaccinated during the recommended period.

Hamplas were the main source of cooked food for about 98.6% of hajjis, which is much better than previous BRF studies done in 1418 H and 1422 H.^{5, 6} Current Saudi Hajj rules have enforced that hajjis are allowed to perform Hajj with Hamplas only. Furthermore, bringing food from outside

Saudi Arabia is not allowed and food cooking is prohibited in Mina.

Our study showed that 13% kept cooked food for more than 2 hours before consumption, which is much better than a previous study done in 1428 H, where 21% of hajjis kept food for more than 2 hours before eating, and also much better than previous studies of 1418 H and 1422 H.^{5, 6} It is well known that major factors that contribute to the development of food poisoning outbreaks are eating cooked food kept at room temperature in warm environments. Keeping cooked food at ambient temperature for long intervals increases the chance of multiplication of bacteria, such as *Bacillus cereus*, *Clostridium perfringens* and *Staphylococcus aureus*.⁷

It is worrisome that 54.2% of the hajjis drank less than the minimum recommended daily amount of fluid intake (about 2 Liters per day) in the 24 hours preceding the survey, which may lead to dehydration and its complications. However, this finding may be explained by the fact that 32.4% of hajjis were not satisfied with the toilet facilities, which may have influenced

Table 1: Behavioral risk factors of Omani hajjis and comparison between male and female hajjis during hajj season 1432 H.

Variables	Total %	Males %	Females %	P-value	
First time hajj	59.2	52.4	78.0	0.001	
Sleeping hours <6hrs	67.8	67.7	68.2	0.016	
Food in Mina from Hamla	98.6	-	-	-	
Transport on foot	8.60	9.2	6.8	0.579	
Walking without shoes	21.8	18.8	30.30	0.014	
Left food > 2hours	13.0	16.6	3.0	0.001	
Food exposed to flies	4.2	5.1	2.7	0.001	
Insect bite	12.8	15.2	6.6	0.566	
Water from plastic bottles/ bags	75.6	-	-	-	
Fluid intake >2 L	45.8	-	-	-	
Razor blade for head shaving	62.8	-	-	-	
Shaving in barber shop	45.6	-	-	-	
Razor blade sharing	0.0	-	-	-	
Accompanying doctor	100	-	-	-	
Using facemask during hajj	55.0	57.6	47.7	0.047	
Feet wounds during hajj	30	6.5	9.5	0.412	
Chronic disease	22.8	17.1	25	-	
Vaccines	Meningitis	85.0	86.9	79.5	0.030
	Flu	84.0	86.1	78.1	0.040
Hit by pebbles at Jamarat	Severe hit	7.0	9.0	1.5	0.001
	Light hit	12.6	14.4	7.6	

hajjis to drink less than normal to avoid going to the toilets.

More than half of the hajjis (62.8%) had used the razor blades to shave their heads during hajj. Head shaving exposes hajjis to scalp wounds especially in case of un-experienced barbers, hastiness due to rush or the hajjis shaving for each other. Due to inability to find barber shops and their crowdedness, hajjis are forced to look for alternate options for head shaving or hair cutting, which is an opportunity for unlicensed mobile barbers. Excessive scalp wounds with the added risk of poor personal hygiene create ideal environment for transmission of blood-borne disease like HIV, Hepatitis B and C. This study showed that none of the Omani hajjis shaved by used razor blade which reflects their awareness regarding the danger of using used blades for head shaving.

Although the study showed increase in proportion of hajjis who used face mask (55%) and increase in influenza vaccination coverage (84%), but cough, throat pain and fever, indicators of upper respiratory tract infections, remained the leading cause of morbidity among the hajjis. The present study showed that 45% of hajjis did not use the face mask, which is almost the same as the finding of a previous study, which reported that 46.4% of hajjis never used a facemask while 20.4% used it sometimes.⁸

This study showed improvement in some of the Omani hajjis health behaviors, such as the increase in proportion of hajjis who ate cooked food supplied by hamla and drank sealed water, vaccination against influenza and use of face mask during hajj. However, around 40% were either unvaccinated against meningococcal meningitis or were not vaccinated at the proper time, and only 45% had their hair cut by professional barbers.

Strengthening of the pre-hajj vaccination program of against meningococcal meningitis is recommended, with proper timing of vaccination. Strengthening of health education campaign for Omani hajjis in the coming years should particularly focus on meningococcal meningitis vaccination and its proper timing, eating proper number of meals, while observing food hygiene, drinking adequate amount of fluids and importance of using the face mask.

References

- 1- Gatrad R, Sheikh A. Hajj: journey of a lifetime. *BMJ* 2005; 330.
- 2- Shafi S, Memish Z, Gatrad A, Sheikh A. Hajj 2006: communicable disease and other health risks and current official guidance for pilgrims. *Hajj 2006: communicable disease and other health risks and current official guidance for pilgrims. Euro Surveill* 2005; 10(12)

- 3- Smith AW, Barkham TMS, Chew SK, Paton NI. Absence of Neisseria meningitidis W-135 Electrophoretic Type 37 during the Hajj, 2002. *Emerging Infectious Diseases* 2003; 9(1): 186-89.
- 4- Office of Assistant Deputy Minister of Preventive Medicine, Ministry of Health, Saudi Arabia. Official order: Control measure that should be taken at ports of entry during Hajj and Umrah. Order number: 77956, Date: 16/8/1428.
- 5- Al-Rabeah AM, El-Bushra HE, Al-Sayed MO, Al-Saigul AM, Al-Rasheedi AA, Al-Mazam AA, et al. Behavioral risk factors for diseases during Hajj to Makkah, 1998. *Saudi Epidemiol Bull* 1998; 5(3,4): 19-20.
- 6- Almagheri Y, Aljouidi A. Behavioral Risk Factors for Diseases during the Pilgrimage to Makkah 1422 H/2002 G [Dissertation]. Riyadh: King Saud University and Saudi Epidemiology Field program. 2002.
- 7- Al-Mazrou, Yagob. Food poisoning in Saudi Arabia. Potential for prevention? *Saudi Med J* 2004; 25 (1): 11-14.
- 8- Choudhry AJ, Al-Mudaimigh KS, Turkistani AM, Al-Hamdan NA. Hajj-associated acute respiratory infection among hajjis from Riyadh. *EMHJ*. 2006; 12(3-4):300-9.

عوامل الأخطار السلوكية بين الحجاج العمانيين خلال موسم حج ١٤٣٢ هـ

بعد جمع الاستبيانات المكتملة، تم إحصاء ما مجموعه ٥٠٠ استبياناً. كانت نسبة الذكور ٧٣,٦% والانات ٢٦,٤%. وكانت أكبر فئتين عمريتين من هم في الثلاثينيات من العمر (٢٨,٦%) يتبعها من هم في العشرينيات (٢٣,٦%). وقد شكلا مجتمعين أكثر من نصف المشاركين بالدراسة. كان ٥٨,٢% من الحجاج دون المستوى التعليمي الجامعي، و٥٩,٢% كانوا يؤدون الحج للمرة الأولى.

بالنسبة للتقليل بين منى ومزدلفة

■ الحج فريضة على كل مسلم عاقل قادر جسدياً ومادياً مرة واحدة في العمر. ويتوافد الحجاج من كل أنحاء المعمورة لأداء هذه الفريضة كل عام، حيث يقدر عدد القادمين إلى مكة المكرمة في كل موسم حج بأكثر من مليوني مسلم. هدفت هذه الدراسة إلى التعرف على السلوكيات المرتبطة بالمشاكل الصحية بين الحجاج العمانيين أثناء موسم حج ١٤٣٢ هـ، وارتباط هذه السلوكيات بأي من العوامل الديموغرافية. تمت الدراسة في مشعر منى خلال يومي العاشر والحادي عشر من شهر ذي الحجة لعام ١٤٣٢ هـ. وقد أجريت الدراسة بواسطة المسح المقطعي بتوزيع استبيانات على عينه من الحجاج العمانيين أثناء تواجدهم في منى والذي طلب منهم تعبئتها ذاتياً.

العينة المستهدفة إلى ٥٠٠ حاجاً. وقد تم اختيار عدد العناقيد في الدراسة ليكون ٦ عناقيد، بواقع ٨٣ حاجاً لكل عنقود.

تم تقدير حجم العينة المفروض في الدراسة لتكون ٢٧٤ حاجاً من خلال أخذ العينة عنقودياً (cluster sampling) و من ثم تم رفع حجم

يليهما الإعياء (٢١,٤٪) ثم الحمى (١١,٢٪). وأفاد ١٧,٢٪ الحجاج أنهم يعانون من واحد أو أكثر من الأمراض الصحية المزمنة، وكانت أكثر المشاكل شيوعاً آلام المفاصل (٧,٦٪)، ثم داء السكري (٦,٤٪) وارتفاع ضغط الدم (٥,٢٪).

ذكر ٥٦٪ من الحجاج أنهم قد تلقوا رسالة صحية واحدة أو أكثر، حيث أفاد أقل من النصف بقليل أنهم تلقوا التثقيف الصحي حول أهمية تجنب الإزدحام وأهمية لقاح الحمى الشوكية، كما تم تثقيف حوالي ثلث الحجاج حول أهمية استخدام قناع الوجه وحمل الأدوية اللازمة ومخاطر استخدام شفرة الحلاقة المستخدمة ومخاطر تخزين الطعام لمدة طويلة.

وأجاب ٨٥٪ من الحجاج على أنهم قد طعموا باللقاح الواقي من مرض الحمى الشوكية.

تم التوصية على إعطاء التحصينات ضمن الفترة المنصوص عليها، والتشديد من قبل السفارات السعودية بعدم إعطاء تأشيرات دخول المملكة قبل إبراز ما يثبت تلقي التحصينات اللازمة، زيادة أعداد الحلاقين المتخصصين في المخيم العماني وحث حملات الحج على توفير حلاقين متخصصين مرافقين مع هذه الحملات، زيادة التثقيف حول أهمية لقاح الحمى الشوكية والتشديد على أخذه في وقت كافي قبل القدوم للحج، تحسين مستوى دورات المياه في المشاعر المقدسة، تكثيف برامج مكافحة الحشرات والعمل على توفير وتحسين وسائل المواصلات حتى لا يضطر الحجاج للتنقل مشياً على الأقدام لمسافات طويلة.

إعداد: د. سالم البوسعيدي، أ. د. عشري جاد محمد، د. عبد الله الزهراني (برنامج الوبائيات الحقلية)

٢٦,٤٪ و ٥٦,٨٪ على التوالي.

حملات الحج كانت المصدر الرئيسي للطعام المطبوخ لقرابة ٩٨,٦٪ من الحجاج بينما لم تزد نسبة الذين حصلوا على طعامهم من الباعة المتجولين على ٠,٢٪، كما أفادت نسبة ضئيلة جداً (١,٢٪) أنها قامت بطبخ طعامها بنفسها. بالنسبة لإبقاء الطعام المطبوخ لأكثر من ساعتين، أجب حوالي ٨٧٪ من الحجاج بالنفي وقرابة ١٢٪ بأنهم يقوموا بذلك أحياناً. كما نفي ٨٥,٤٪ تعرضهم للدغ الحشرات، بينما أجب ١٢,٨٪ على حدوث ذلك بعض الأحيان.

أظهرت الدراسة أن ٤٥٪ من الحجاج العمانيين لم يستخدموا أبداً كمادة الوجه أثناء أدائهم المناسك. وكانت شفرة الحلاقة هي الوسيلة الأكثر تفضيلاً للحلاقة لـ ٦٢,٨٪ من الذكور، بينما فضل البقية الحلاقة بألة الحلاقة أو بالمقص بالنسبة للإناث (٩,٤٪ و ٢٧,٨٪ على الترتيب). من جملة الحجاج الذكور ممن حلّقوا رؤوسهم وقاموا بالإجابة على السؤال المخصص بمكان الحلاقة، أفاد ٤٥,٦٪ بأنهم قد حلّقوا رؤوسهم عند حلاقين متخصصين أثناء التواجد في منى.

بالنسبة للعبء المرضي، فقد عانى ٦٦٪ من مشكلة صحية حادة واحدة أو أكثر، حيث عانى ٤٧٪ من أعراض نزلات البرد المتمثلة في آلام الحلق أو السعال،

The Saudi Epidemiology Bulletin welcomes reports from the regions. Please send your reports to the address shown. Thank you.

Send correspondence, comments, calendar listings, or articles to:

Saudi Epidemiology Bulletin
Editor-in-Chief
P.O. Box 6344
Riyadh 11442, Saudi Arabia

For epidemiological assistance,
call or fax the FETP at
01-496-0163
Website: www.fetp.edu.sa

وعرفات، ١٩,٨٪ استخدموا الحافلة أو السيارة و ٨,٦٪ تنقلوا سيراً على الأقدام فقط، و ٧١,٦٪ تنقلوا بالحافلة أو السيارة تارة وعلى الأقدام تارة أخرى. وقد قام ٧٢٪ من الحجاج برمي الجمرات من الطابق الأرضي، بينما قام البقية برمي الجمرات من الطابق العلوي أو من كلا الطابقين بنسبة ٦٪ و ٣,٤٪ على الترتيب. كما أفاد ٢١,٨٪ بأنهم كانوا يمشون حفاة القدمين.

تميز الحجاج بشكل عام بقلة النوم حيث كان متوسط ساعات النوم حوالي ٤ ساعات ونصف وأجاب ٥٤,٢٪ أنهم يشربون أقل من لترين من الماء يومياً، وكانت قناني الماء البلاستيكية هي المصدر الأساسي لمياه الشرب لجميع الحجاج العمانيين. وقد أظهر معظم الحجاج الرضا على إمدادات مياه الشرب. من ناحية أخرى كان الرضا أقل بكثير بالنسبة لدورات المياه حيث كان أقل من ربع الحجاج فقط راض عنها وقرابة النصف وصفها بالمقبولة بينما وصفها ٣٢,٤٪ بأنها سيئة. وأجاب معظم الحجاج أنهم تناولوا وجبتين أو ٣ وجبات خلال ٢٤ ساعة قبل تعبثهم نموذج الاستبيان بنسبة

Department of Preventive Medicine:

- **Dr. Ziad Memish**
Assistant Deputy Minister for Preventive Medicine, and SEB Supervisor
- **Dr. Raafat Al Hakeem**
General Director, Parasitic and Infectious Diseases Department
- **Dr. Amin Mishkhas**
Assistant General Director, Parasitic and Infectious Diseases Department

Field Epidemiology Training Program:

- **Dr. Mohammed Al-Mazroa, FETP**
FETP Supervisor, SEB Editor-in-Chief
- **Dr. Randa Nooh**
Consultant Epidemiologist, Bulletin Editor
- **Dr. Abdul Jamil Choudhry**
Consultant Epidemiologist
- **Dr. Abdullah Alzahrani**
Epidemiologist

Selected notifiable diseases by region Jul - Sept 2012

	Riyadh	Makkah	Jeddah	Medinah	Taif	Qassim	Eastern	Hasa	Hafr Al-Batin	Asir	Bisha	Tabuk	Hail	Al-Shamal	Jizan	Najran	Baha	Al-Jouf	Goriat	Gonfuda	TOTAL
Measles	5	6	7	2	1	2	1	5	0	0	0	0	0	0	7	4	1	0	0	1	42
Mumps	5	0	0	0	2	3	3	0	1	0	1	0	0	1	3	1	0	0	0	0	20
Rubella	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	4
Varicella	343	72	164	38	119	257	391	391	49	755	22	6	21	37	31	432	0	42	14	10	3194
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	28	0	2	1	0	12	0	2	1	2	0	0	0	2	1	0	0	0	0	0	51
Hepatitis B	203	99	194	80	100	43	103	28	1	133	4	21	3	10	32	12	1	0	3	21	1091
Hepatitis C	95	53	149	13	29	15	58	10	0	53	4	1	1	3	3	2	0	9	0	18	516
Hepatitis unspecified	5	2	2	0	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	34
Hepatitis A	31	2	7	1	0	6	13	4	0	20	0	2	1	0	0	4	1	3	0	0	95
Typhoid & paratyphoid	3	2	8	9	0	6	11	3	0	13	0	0	0	0	4	0	0	2	0	4	65
Amoebic dysentery	0	114	281	12	17	4	188	8	1	77	11	0	0	0	0	0	0	0	6	0	719
Shigellosis	1	2	3	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	26
Salmonelosis	122	8	41	7	0	2	107	17	0	6	1	0	0	0	1	10	0	1	0	3	326
Brucellosis	120	9	15	23	27	167	41	3	44	190	30	1	30	23	17	31	0	20	2	0	793
Dengue Fever	0	18	291	0	1	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	315
Alkhorma	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	13

Comparisons of selected notifiable diseases, July - Sept 2011-2012

DISEASE	Jul - Sep 2012	Jul - Sep 2011	Change %	Jan - Sep 2012	Jan - Dec 2011	DISEASE	Jul - Sep 2012	Jul - Sep 2011	Change %	Jan - Sep 2012	Jan - Dec 2011
Cholera	4	0	100	5	1	Meningitis mening.	1091	861	3	3341	4494
Diphtheria	0	0	0	5	2	Meningitis other	516	433	-29	1710	2328
Pertussis	1	3	-67	5	11	Hepatitis B	34	20	-82	75	85
Tetanus,neonat	3	3	0	14	14	Hepatitis C	95	61	-82	240	321
Tetanus,other	3	5	-40	6	12	Hepatitis unspecified	65	57	-17	235	292
Measles	42	63	-33	178	362	Hepatitis A	719	496	3	1679	1985
Mumps	20	5	300	37	26	Typhoid & paratyphoid	26	7	-48	52	54
Rubella	4	0	100	4	0	Amoebic dysentery	326	390	-48	856	1394
Varicella	3194	3227	-1	15205	19469	Shigellosis	793	782	-30	2913	3942
Dengue Fever	0	0	0	1	6	Salmonelosis	315	699	-30	1402	3302
Alkhorma	51	51	0	174	6	Brucellosis	13	22	-30	29	93

Diseases of low frequency, Jul – Sept 2012

- * Yellow fever , Plaque , Poliomyelitis , Diphtheria, Meningococcal Meningitis, Ecchinococcosis, Rabies , : No Cases
- * Pertussis :1 Case (Eastern)
- * Neonatal Tetanus :3 Cases (Makka)
- * Cholera: 4Cases (Eastern 2, Hasa 2)