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وزارة الصحة  
وكالة الوزارة للصحة العامة  
الوكالة المساعدة للصحة الوقائية  
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# النشرة الوبائية السعودية

## Saudi Epidemiology Bulletin

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# Knowledge, Attitude, and Practices among Primary Health Care Workers regarding Injection Safety in Eastern Riyadh, Saudi Arabia, 2017 (1438 H).

Occupational exposure of health care workers (HCWs) to blood after percutaneous injuries constitutes a risk for transmission of blood-borne virus pathogens (e.g. hepatitis B and C and HIV). The World Health Organization (WHO) defines a safe injection, phlebotomy, lancet procedure or intravenous device insertion, as a procedure that does not harm the recipient, does not expose the provider to any avoidable risk, and does not result in any waste that is dangerous for other people.

Previous studies in Saudi Arabia (1-4) described 14-15% of HCWs experienced injection injuries. Among these, needle stick injuries were the most commonly reported. The majority of injuries occurred after administration and before disposal of objects (e.g. during recapping, bending the needle after giving the injection). The studies highlight the necessity of increased awareness, training, and education of HCWs, as well as measures such as immunization, and proper disposal facilities.

We conducted a cross-sectional descriptive study in the primary health care centers (PHCs) in Eastern Riyadh health district of Saudi Arabia to assess the knowledge, attitude, and practices (KAP) of HCWs on injection safety. We used a modified questionnaire based on MOH facility assessment of infection control to collect data on HCWs knowledge, attitude, and practices about injection safety, blood-borne infections transmission and management. We also assessed HCWs history of exposure to blood-borne infection and post-exposure management, the availability of necessary resources for infection control in the PHCs, and the rate of HepB vaccination status among HCWs.

We recruited a total of 201 participants (81 physicians and 120 nurses) from 15 PHCs through random

sampling. Among participants, 134 (67%) were females, 67 (33%) were males. The mean age was 35 years  $\pm$  7 and the majority (68%) were Saudis. Compared to physicians, nurses were significantly more likely to be younger age (32 vs. 39 years mean age,  $p<0.01$ ), females (78% vs. 49%,  $p<0.01$ ), and Saudi nationals (98% vs. 22%,  $p<0.01$ ). In the past 3 years, at least 38% of both physicians and nurses received some continuous medical education in infection control, injection safety, or waste disposal. Most of the participants (92%) had received HepB vaccination.

From the environmental assessment, almost all (98%) the syringes of different volumes in the PHC centers were disposable and individually. As well, almost all (98%) PHCs had the special Ministry of Health (MOH) labeled puncture-proof yellow containers to collect used needles and sharp objects, however, 83% of centers used traditional plastic bags in trash cans (not covered) as well. Fewer centers (56%) used disinfectant with the yellow containers. All the PHCs used a specialized company hired by the MOH to dispose of medical waste. However, still 52% of centers disposed used needles and other sharp wastes into regular domestic waste.

The incidence of needlestick injuries among HCWs in the previous year was 18% (95% CI 8.8%–19.0%), with no significant difference between physicians (17%) and nurses (18.3%;  $p=0.84$ ). Among who had experienced injuries, 19 (52%) were during recapping needle and 23 (64%) were due to a bent needle before disposal.

Regarding safe injection practices (Table 1), doctors and nurses significantly differed in cleaning hands with alcohol before injection (92% of nurses compared

*(Continued on page 3)*

**Table 1: Injection safety practices among physicians and nurses:**

Practice	Physicians (n=81)	Nurses (n=120)	Significance (p value)
Hand washing with soap and running water before injection	75 (92.5%)	110 (91.7%)	0.811
Hand cleaning with alcohol before injection *	65 (80.3%)	110 (91.7%)	0.017
Using a new pair of gloves for every injection	80 (99%)	119 (99%)	0.778
Received at least 3 doses of hepatitis B vaccine	79 (97.5%)	110 (91.7%)	0.085
Had a needle-stick injury in the past year	14 (17%)	22 (18.3%)	0.849
Recap needle with 2 hands before disposal *	9 (64%)	10 (45.5%)	0.040
Bend needle before disposal	10 (71%)	13 (59%)	0.116

\*Significant difference at 0.05 level

# Knowledge, Attitude, and Practices among Primary Health Care Workers regarding Injection Safety in Eastern Riyadh, Saudi Arabia, 2017 (1438 H) . cont...

to 80% of doctors,  $p=0.02$ ) and using both hands to recap needles before disposal (64% of doctors compared to 46% of nurses,  $p=0.04$ ). There were no significant differences between physicians and nurses regarding other practices such as hand washing with soap and running water before injection, using a new pair of gloves for every injection, complete hepatitis B vaccination, experiencing needle-stick injuries in the past year, and bending needle before disposal.

*Reported by: Dr. Abotaleb Alsayed, Dr. Shady Kamel.*

**Editorial notes:** The incidence of needlestick injuries in Eastern Riyadh (18%) as identified in this study is comparable to incidences in PHC centers in Jazan (14%), Abha (16%) and King Saud Medical City (14%) as identified in other studies (1-3). All these calculations of incidence used the number of research participants as the denominator, except for one study in King Abdul Aziz Specialist Hospital (5) which calculated incidence using patient days as the denominator. One study in the United States compared different denominators for calculation of incidence of needle stick injuries and concluded patient days was the most suitable, although the results were not conclusive regarding outpatient areas (6).

The studies conducted at PHCs showed no significant differences between physicians and nurses (Eastern Riyadh, Jazan, Abha) while studies in hospitals of King Saud Medical City, Asir Central Hospital, Buraidah Central Hospital, and King Khalid University Hospital showed more injuries occurred among nurses compared to physicians (3,4,7,8).

Recapping of needles was the most common source of injuries. This result is also very similar to the other studies in PHCs in Saudi Arabia (1-3,5). MOH and PHCs need to adopt new technologies to avoid recapping such as autodestruct syringes or bedside needle disposal & recapping devices which were evidently more effective than educational and behavior change programs (4,5,8).

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**Keywords:** Health Knowledge, Attitudes, Practice; Needlestick Injuries; Occupational Exposure; Occupational Injuries; Health Personnel; Saudi Arabia

# Outbreak of a foodborne disease in Turbah, Taif, Saudi Arabia, January 2017 (1438 H).

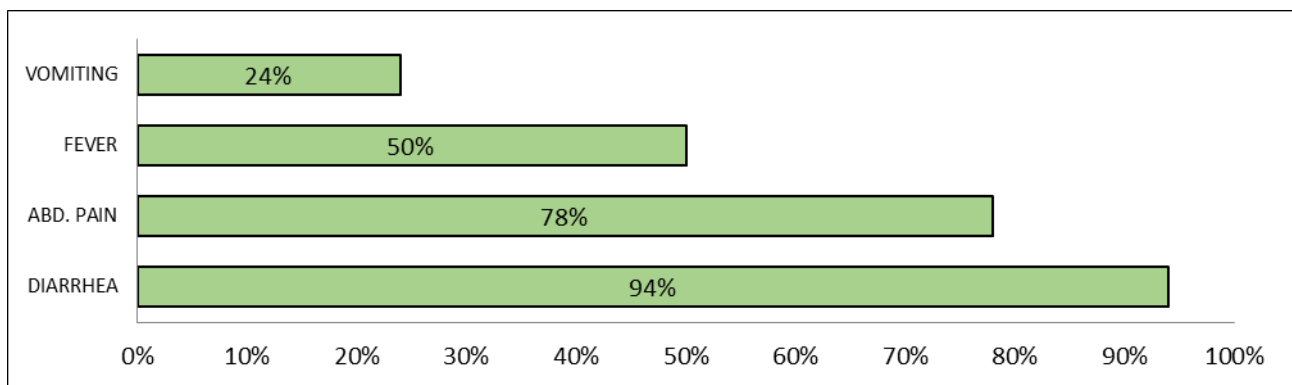
In the morning of Monday 16<sup>th</sup> January 2017, 145 ill persons presented to Turbah, King Faisal and Pediatrics hospitals in Taif City, complaining of gastrointestinal (GI) symptoms of diarrhea, abdominal pain, vomiting, and fever. The cases presented to the hospitals 9-72 hours after eating from a local restaurant, Restaurant A, on the day before.

Teams from the Directorate of Health Affairs of Taif and the Field Epidemiology Training Program (FETP) conducted an outbreak investigation to determine the magnitude of the outbreak, identify the food item responsible for the outbreak, the source and route of infection, and recommend preventive measure. Investigation methods included tracking and interviewing cas-

es, collection of specimens from cases, food handlers, and food remnants for laboratory analyses, and inspection of the restaurant.

We defined a case as any person who had eaten at/from Restaurant A on Sunday 15<sup>th</sup> January that had developed any GI symptoms such as abdominal pain, diarrhea, vomiting, or fever within 9-72 hours. We identified 145 cases, of which 93 (64%) were male. Ages ranged between 4 - 62 years with a mean of 31 years. All cases reported eating at Restaurant A between 15 and 16 January. The time lapse between food consumption and the appearance of symptoms was found to range between 6 to 48 hours (Figure 1).

**Figure 1: Reported symptoms during foodborne disease outbreak in Turbah, KSA, January 2017.**

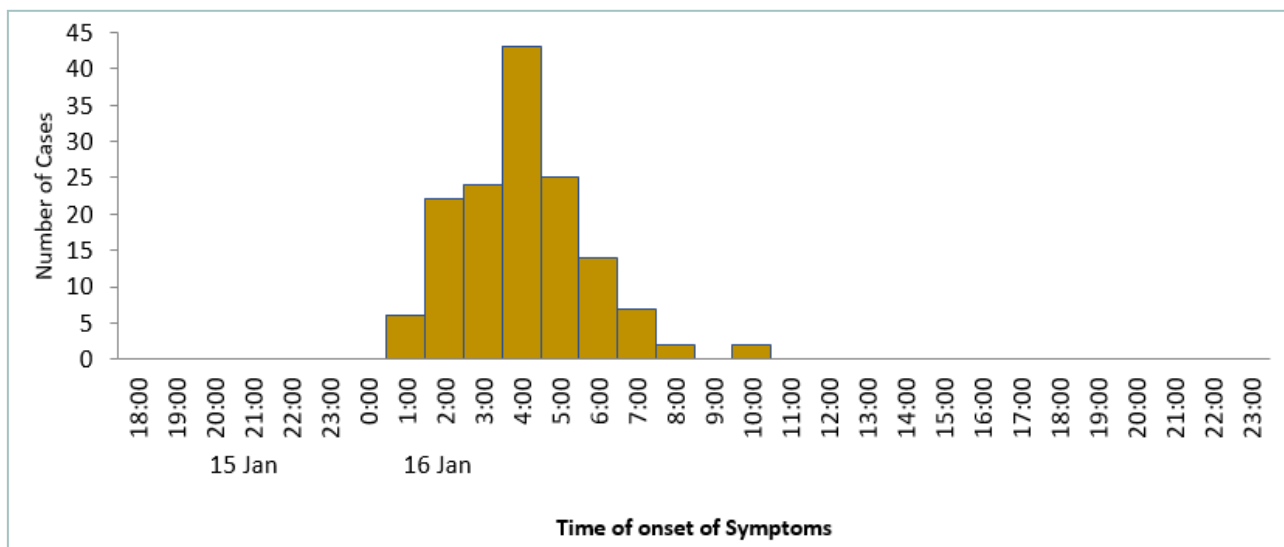


The first case reported onset of symptoms at 01:00 am on 16<sup>th</sup> January, while the last case reported symptom onset at 10:00 am the same day. Most of the symptoms appeared among cases between 02:00 - 06:00 am (Figure 2). The median incubation period

(time between exposure and symptom onset) was 12 hours.

Among food items, we found a strong association between developing symptoms and consumption of shawarma (AR=100%). Everyone who developed GI

**Figure 2: Cases of GI illness among consumers of food from a restaurant in Turbah, KSA by the time of onset of symptoms on 16<sup>th</sup> January 2017 (n=145).**



## Outbreak of a foodborne disease in Turbah, Taif, Saudi Arabia, January 2017 (1438 H). cont...

symptoms had consumed shawarma from the restaurant on 15.1.2017.

The collected specimens from cases (stool or rectal swab) showed presence of *Salmonella* in 45% of the samples (25 out of 55). Cultures for throat, nasal, fingernails and anal swabs taken from restaurant showed no growth for any pathogen. However, stool cultures taken from 2 food handlers who had developed GI symptoms showed *Salmonella* growth in one of the samples. There was a lack of clear history of recent diarrhea or isolation of *Salmonella* from the food handlers before the outbreak, and all of them possessed invalid health certificate.

The cultures from the restaurant food items and water showed no growth for any pathogen, however, the environmental investigation showed below standard hygiene levels in the restaurant. Unfortunately, we could not identify how the shawarma had got contaminated and which of its ingredients was responsible. The restaurant was closed.

*Reported by: Dr. Abotaleb Alsayed, Dr. Sami Almudarra .*

**Editorial notes:** This is a classical scenario of single source foodborne disease outbreak. All cases reported eating at the same restaurant and consuming the same food item, and the epidemic curve was typical of a point source outbreak.

Clinical, epidemiological, and laboratory data point to *Salmonella* as the most likely causative factor of this outbreak. *Salmonella* bacterial infection is one

of the most common pathogens causing foodborne diseases that affect millions of people every year (1). It is also one of the commonest causes of food poisoning in Saudi Arabia (1, 2) in 2017, there was 1452 cases of *Salmonella* food poisoning around the Kingdom (3).

The implicated food item was shawarma. *Salmonella* is commonly associated with poultry products. The reasons beyond the infection were most probably unsafe handling of chicken during the preparation of shawarma. *Salmonella* has been associated with previous outbreaks involving chicken shawarma (2).

The MOH needs to coordinate with other authorities to intensify supervision of restaurants and food handlers, including regular periodic inspection of suppliers, restaurants, and food handlers. It is also important to educate food handlers on safe food preparation and also to strengthen procedures followed by medical personnel in emergency rooms regarding notification and proper case management including the appropriate collection and testing of samples.

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**Keywords:** Foodborne Diseases; Disease Outbreaks; Food Handling; Saudi Arabia

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# Mortality Trends in Mecca during the Period 2006-2016 (1427-1436H).

Mecca city in the west of Saudi Arabia has a population of 1.58 million as of 2015 and is a popular destination for Islamic pilgrimage (Hajj and Umrah) from countries around the world. The population in Mecca increases approximately 20% throughout the year due to religious visits; while during the second half of Ramadan and Hajj season the total population almost triples. We explored the number and causes of deaths and their variation by age, sex, nationality, in addition to observing mortality trends for Mecca residents and visitors over the 10-year period 2006-2016 (1427-1436H).

We defined *Hajj period* as the period between 15 DhulQu'dah to the end of Muharram of the Islamic year. We defined *Hajj pilgrims* as those who died during the defined hajj period and were reported pilgrims in records and *Umrah pilgrims* as those who died outside the defined hajj period and were reported pilgrims in records. For those who died anytime during the year and were reported as non-pilgrims in records, we defined them as *Non-pilgrims*. We included locations of Mecca city, associated locations for rituals (Mina, Arafah, Muzdalifa), and Madinah (included pilgrims only). Per country annual total number of pilgrims were calculated from the quota of pilgrims per country decided by Saudi Arabia.

We reviewed Ministry of Health records using death certificates and mortality data sets over the period 1427-1436 H (2006-2015 G). We extracted information including age, gender, nationality, Hajj and resi-

dency status, date and time of death, and cause of death based on the ICD-10 classification. Data were translated into English, coded, and entered into Microsoft Excel for cleaning and analyses.

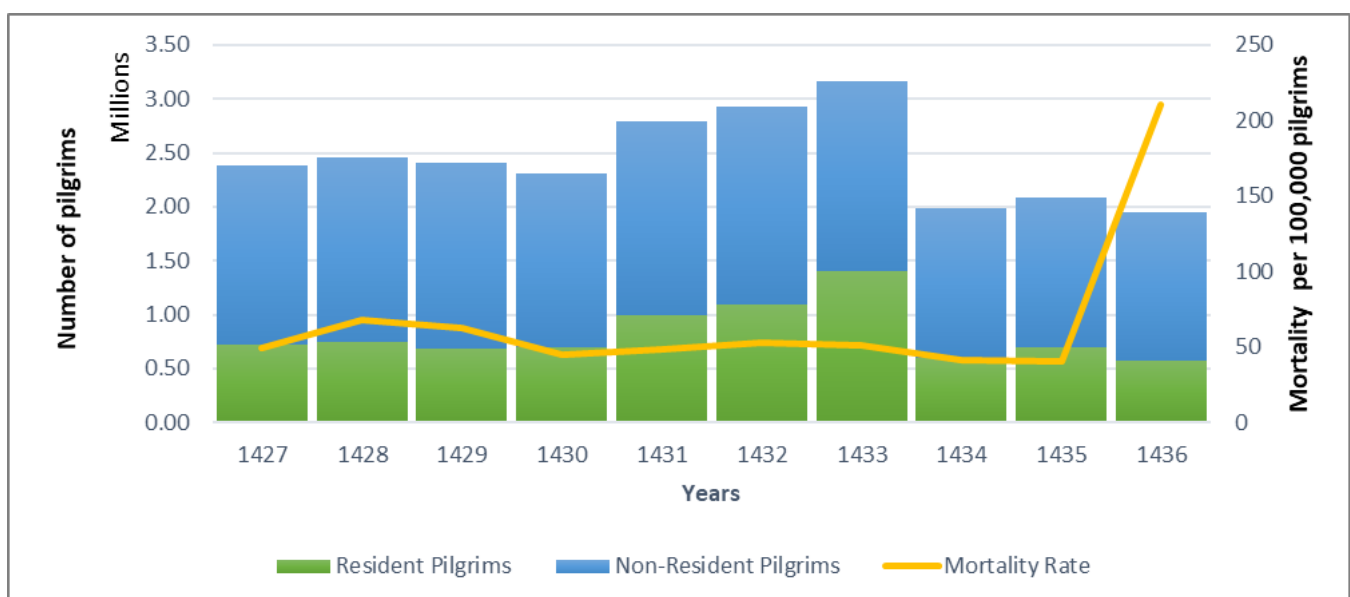
The various causes of death reported in death certificates were grouped and re-categorized to: cardiac, respiratory, trauma, cancer, central nervous system, congenital anomalies, cerebrovascular, dengue, diarrhea, epilepsy, fever, gastrointestinal, heat, diabetes type 1 and 2, malaria, meningitis, obstetric, renal failure, senility, septicemia, tuberculosis and thyroid diseases.

We reviewed 70,667 death records. with an overall mean age of 54.7 years ( $\pm 24.74$ ). Deaths tended to significantly be aged 60 years and above (47%) and to be males (59%,  $p < 0.001$ ). Of the total deaths, 22% were among Hajj pilgrims, 8% were among Umrah pilgrims, and 70% were among Mecca residents.

Among Hajj pilgrim deaths, the mean age was 62 years ( $\pm 13.67$ ), 55% were age 60 years and older, and 76% were male. Among Umrah deaths, the mean age was 61 years ( $\pm 16.95$ ), 63% were 60 years and above and males (55.3%). Among non-pilgrim deaths, the mean age was 52 years ( $\pm 27.51$ ), 47% were aged 60 years and above, and 76% were male. Deaths among Hajj and Umrah pilgrims represented 32% of all recorded deaths ( $p < 0.001$ ) with 60% of those deaths occurring outside of hospitals ( $p < 0.001$ ).

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**Figure 1: Annual crude mortality rate per 100,000 pilgrims in Mecca, Saudi Arabia, 1427-1436H.**

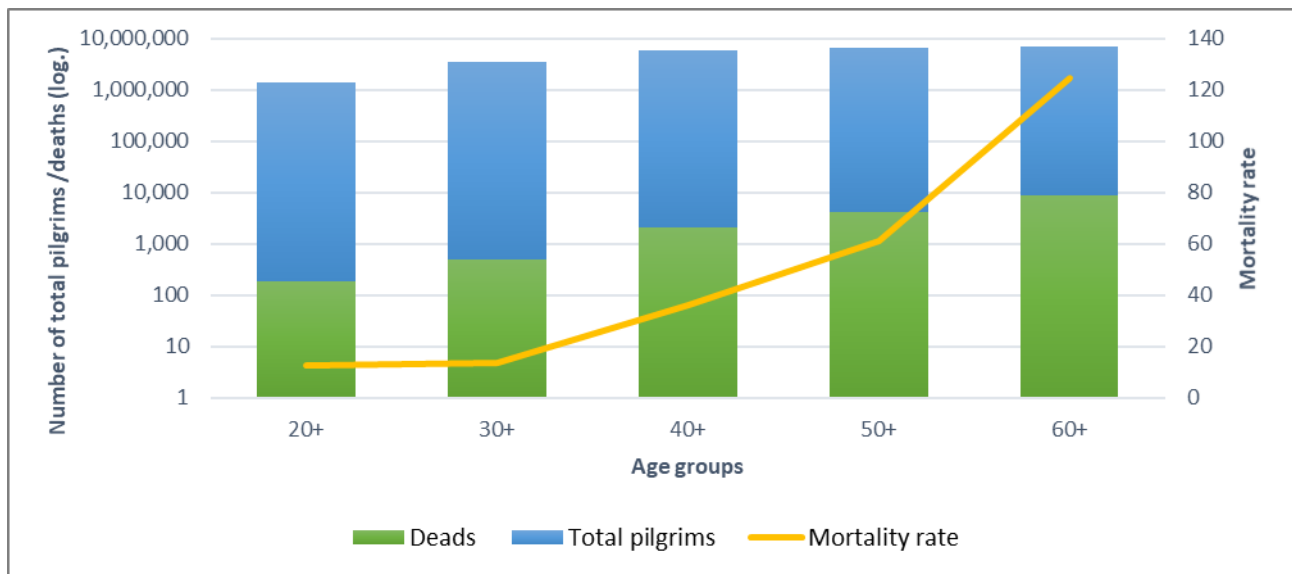


## Mortality Trends in Mecca during the Period 2006-2016 (1427-1436H). cont...

The crude mortality rates ranged between 40-68 deaths per 100,000 pilgrims per year for Hajj seasons of 1427 to 1435H and then jumped up to 211 deaths per 100,000 pilgrims per year for Hajj season of 1436H most likely due to the stampede event in Mina (Figure 1).

Age-specific mortality rates, stratified by age groups of 10-year intervals, shows pilgrims aged 60 years and above had mortality rate of 125 deaths per 100,000 pilgrims which was around ten times higher than pilgrims of 20-39 years old (Figure 2). They had relative risks (RR) of death during Hajj seasons that

**Figure 2: Age-specific mortality rates among pilgrims during 1427-1436H**



ranged between 12 times (1430H) and 21 times (1432H) the RR for pilgrims aged age 20-39 years.

The most common causes of deaths were heart problems, respiratory problems, trauma (Table 1). Pilgrims who died because of trauma were significantly younger and more likely to be male (Table 1).

The cardiac causes were the leading causes of death for all years except in 1436 where obviously trauma was the leading cause of death (Figure 3).

*Reported by: Dr. Safiah AlDubaisi, Dr. Sami Almudarra .*

**Table 1: Cause specific mortality due to cardiac, pulmonary and trauma, age and gender for deaths among pilgrims during 1427 to 1436H**

Disease Category	Deaths (N=15,661)	Age **	Gender**		Cause specific mortality per 100,000
	Number (%*)	Mean (±SD)	Male	Female	
Cardiac	6,265 (40%)	64 (±13)	4,416 (70%)	1,849 (30%)	256
Pulmonary	3,427 (22%)	64 (±12)	1,844 (68%)	867 (32%)	108
Trauma	2,711 (17%)	55 (±13)	3,308 (97%)	119 (3%)	171

\* Ill-defined and other diseases not included

\*\* significant at  $p < 0.001$

**Editorial notes:** The Hajj is the largest annual mass gathering in the world with 2-3 million pilgrims gathering in a wide geographic area in Mecca and to lesser extents in Madina. Another pilgrimage (Umrah) is less in rituals, time, and place (Mecca's Masjid Haram) but is occurring continuously over the months of the year although there is a high peak during the

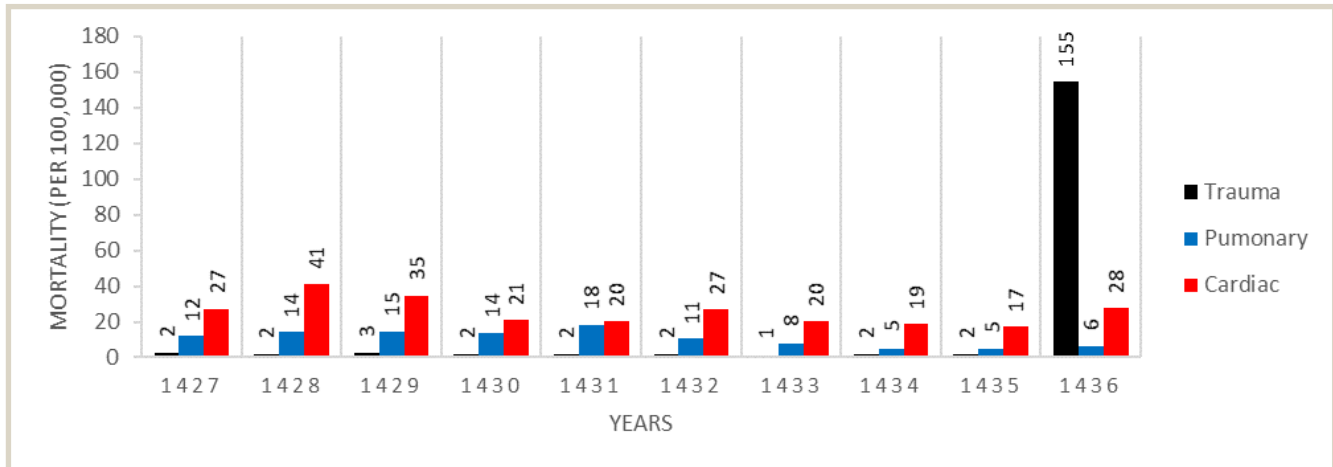
month of Ramadan.

This volume of pilgrims from around the world has implications for policy makers and services planners. Different aspects of mass gathering health have been documented in the scientific literature, including communicable and non-communicable diseases, infection

*(Continued on page 8)*

## Mortality Trends in Mecca during the Period 2006-2016 (1427-1436H). cont...

Figure 3: Cause specific mortality rates for the major causes of death among pilgrims to Saudi Arabia during 1427 to 1436H.



control, immunization, use of antibiotics, reproductive outcomes, psychosocial and behavioral effects, and death (1–3).

This study explored the demographics and trends of deaths related to Hajj and Umrah pilgrimage and residents of Mecca over ten years period. Trends in mortality rates reflect changes in disease/events occurrence or outcomes, and they reflect on overall population health. Although there was a stampede incident in 1427H (2006), mortality was higher in the subsequent 2 eventless years then started to decline. The decline might be attributable to strengthening of crowd control measures applied by the authorities (4). Mortality further decreased in 1434-1435H with reduced numbers of pilgrims (especially resident pilgrims). Unfortunately, mortality increased greatly in 1436H (2015) due to the crush and stampede in Mina (Figure 3).

Higher mortality was reported to be significantly associated with male gender, and older ages. The three most common causes of death were cardiac, respiratory, and trauma. Cardiac causes were the leading cause of death across years except 1436H (Figure 4). The traumatic event in Mina 1436H (2015) affected all age groups with proportionally higher impact among age groups 40-49 and 50-59 years (Figure 3).

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**Keywords:** Mortality; Pilgrims; Hajj; Saudi Arabia



# The pattern of injuries among pilgrims in Mina General Hospital, Hajj 1438H–2017: a cross-sectional study.

The annual Hajj pilgrimage in Saudi Arabia is the largest mass gathering worldwide. Above 2 million pilgrims gather over a few days at the same places (Mina, Arafat, Muzdalifa) for Hajj rituals. This is usually associated with enormous health challenges among which is increased injuries.

Globally, more than five million deaths occur annually because of injury (1). For every death, it is estimated that there are dozens of hospitalizations, hundreds of emergency department visits and thousands of doctors' appointments (1,2). Injuries during Hajj varies in numbers and severities from simple traumatic injuries, through crush injuries and asphyxiation, and up to mass casualties and fatalities such as the 2015 Mina stampede (1436H) (3).

We conducted this study to provide insights into the pattern of injuries among Hajj pilgrims, associated factors, and possible prevention measures. We used a descriptive cross-section study design and included all documented injury cases reported to the largest health facility in the ritual places i.e. Mina General Hospital. We excluded cases who were not able to speak Arabic, English, or Urdu and who are not pilgrims.

We collected data over a 10 day period (8–15/12/1438H) from patients in the emergency room, OPD, and inpatient wards using a questionnaire administered by the principal investigator. The questionnaire was designed in English to collect data about injuries based on the International Classification of External Causes of Injury (ICECI) which was developed by WHO (4). It was first tested for reliability and validity through experts review and piloting at another hospital.

The number of injured was 137 cases out of 18,730 pilgrim visitors i.e. 7 injuries per 1,000 pilgrim

visitors to the hospital. These included 109 males (80%) and 28 females (20%). Ages of injured ranged between 16 and 77 years with a mean of 46 years old. Most of the injured were from Saudi Arabia (27%), Egypt (24%), Yemen (8%), and India (7%); besides other nationalities.

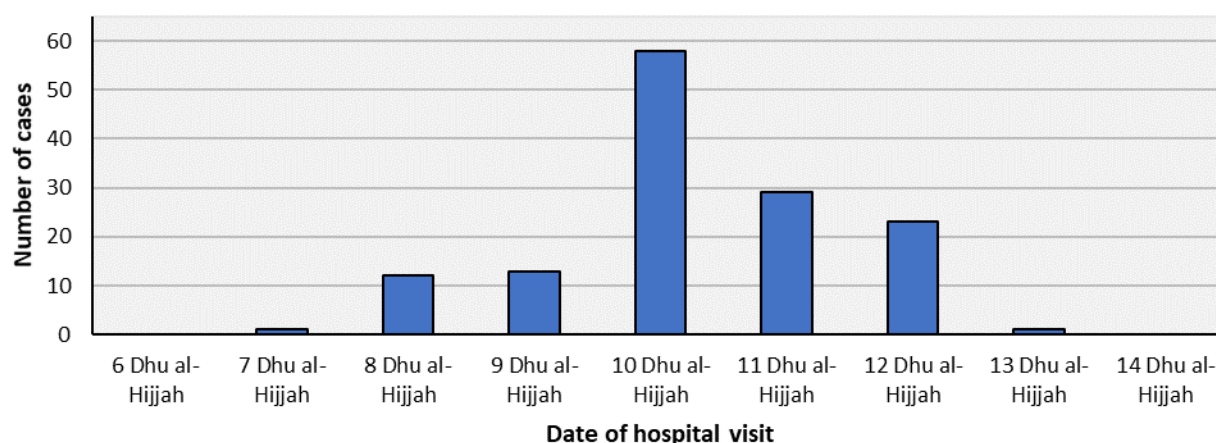
Time to reach the hospital was 15-40 minutes for most injured pilgrims. Less than a third of the injured (29%) had received first aid at the site of injury, and only a quarter them (25%) arrived at the hospital by ambulance. However, the vast majority of cases (91%) were stable, only 9% required admission, and only 1% were in a critical situation. Most injuries (42%) presented to the hospital on the 10th day of Dhu al-Hijjah, 1438H (1st September 2017, Figure 1); the day on which pilgrims return back to Mina from Arafat and Mozdalifa and start stoning of the devil (Ramy al-jamarāt).

Most injuries were tissue contusions (36%), bone fractures (28%), and cut wounds (25%). Among the fractures, 92% were closed and 8% were open fractures. They included long bone (46%), hand and foot (38%), hip (10%), and Colles' fracture (5%). Each of burn and head injuries represented 4%. The mechanisms of the injury included falls (88%), foot sprain (twisting, 23%), sliding (18%), crushing injuries (5%), burn (4%) and road traffic accidents (1%). Diabetes Miletus and hypertension were prevalent among injured at 30% for each. Other comorbidities included osteoporosis (10%), asthma (6%), cardiovascular disease (1%), and chronic renal failure (1%).

*Reported by: Dr. Turki M Alaslani, Dr. Shady K Abdulrahman, Dr. Amal Al-Nafisi.*

*(Continued on page 10)*

**Figure 1:** Injuries among pilgrims presenting to Mina General Hospital by date, during Hajj 1438H - 2017G.



## The pattern of injuries among pilgrims in Mina General Hospital, Hajj 1438H–2017: a cross-sectional study. cont...

**Editorial notes:** Hajj is a unique mass gathering because of its multidimensional complexity due to religious, political, cultural, security, economic, operational, and logistic factors. This commonly leads to injuries, which could result in temporary or permanent disabilities and deaths (3,5). Injuries during Hajj especially mass injuries and deaths could be preventable. Modernization of the infrastructures in the ritual places, reduction of pilgrims numbers, and the strengthening of crowd control measures implemented by the Saudi authorities have evidently led to reduced incidents and deaths (6).

Although this study was limited to one facility in Mina only, the hospital is the largest one and Mina is where the pilgrims gather most days of Hajj. The findings give clues to the pattern of injuries during Hajj as well as the chain of survival; starting from factors causing the injuries, reaching the hospital, and up to the final outcome. The findings related to types of injuries and the underlying mechanisms are comparable to previous studies done during Hajj (5,7).

Majority of injuries were reported on the day of 10<sup>th</sup> Dhu al-Hijjah. Elder age and pilgrims with comorbidities were more affected. These point to the need for further strengthening of preventive measures by all parties involved, including security authorities, camps (Hamla) leaders, etc.

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## ملخص باللغة العربية

### المعرفة والمواقف والممارسات بين عاملي الرعاية الصحية الأولية فيما يتعلق بمأمونية الحقن في شرق الرياض، المملكة العربية السعودية، 2017م (1438هـ)

لم يكن هناك فرق كبير بين الأطباء والممرضات من حيث المعرفة والسلوك والممارسات المتعلقة بالسلامة، باستثناء تنظيف اليدين بالكحول قبل الحقن، والذي كان أكثر شيوعاً في الممرضات (92%) مقارنة بالأطباء (80%)، وكذلك استخدام كلتا اليدين أثناء إعادة غلق الإبر قبل التخلص منها، والتي كانت أكثر شيوعاً في الأطباء (64%) من الممرضات (46%).

نسبة حدوث إصابات بالإبرة في هذه الدراسة مماثلة لنتائج دراسات أخرى من مراكز الرعاية الصحية الأولية في جازان (13.9%) وأبها (15.9%) وكذلك مدينة الملك سعود الطبية (13.8%). أبرزت الدراسات ضرورة تصميم وتنفيذ المزيد من البرامج التعليمية حول الحقن الآمن لتغيير السلوك لزيادة الوعي والتدريب، وكذلك التدابير الوقائية مثل عدم إعادة غطاء الإبرة، والتحصين، ووسائل التخلص المناسبة من النفايات الطبية.

إعداد: د.أبو طالب السيد، د. شادي كامل.

يشكل التعرض المهني للعاملين في مجال الصحة للدلم بعد الإصابات عن طريق الجلد خطراً على انتقال مسببات الأمراض الفيروسية المنقولة بالدم (مثل التهاب الكبد B وC وفيروس نقص المناعة البشرية). تُعرّف منظمة الصحة العالمية (WHO) الحقن الآمن، أو بضع الوريد، أو الإجراء الجراحي أو إدخال الجهاز عن طريق الوريد كإجراء لا يضر المتلقي، ولا يعرض مقدم الخدمة لأي خطر يمكن تجنبه ولا ينتج عنه أي نفايات تشكل خطورة على أشخاص آخرين.

أجريت هذه الدراسة الوصفية في مراكز الرعاية الصحية الأولية شرق الرياض لتقييم معرفة وموقف وممارسات العاملين في مجال الرعاية الصحية بشأن مأمونية وسلامة الحقن. تم اختيار ما مجموعه 201 مشاركاً (81 طبيباً و120 ممرضة) من 15 مركز صحي من خلال أخذ عينات عشوائية. وتم استخدام استبيان معدل بناءً على استمارة تقييم المنشأة للتحكم في العدوى.

من بين المشاركين، 67% إناث، 33% ذكور، متوسط العمر كان 34.8 عاماً، وكانت الغالبية (68%) من السعوديين. كان لدى الممرضات احتمالية أعلى بكثير أن يكونوا أصغر سناً، من الإناث، ومواطنين سعوديين مقارنة بالأطباء. خلال السنوات الثلاث الماضية، تلقى 38% على الأقل من الأطباء والممرضين نوعاً من التعليم الطبي المستمر في مجال مأمونية الحقن. وقد تلقى معظم المشاركين (92%) التطعيم ضد الكبد الوبائي.

تقريباً جميع الحقن المستخدمة في مراكز الرعاية الصحية الأولية وبأحجامها المختلفة كانت مفردة الاستخدام ومعبأة بشكل فردي. بالإضافة إلى ذلك، احتوت جميع المراكز تقريباً على حاويات وزارة الصحة الصفراء المقاومة للثقوب لجمع الإبر والأدوات الحادة المستخدمة، لكن بعض المراكز (83%) استخدمت الأكياس البلاستيكية التقليدية في علب القمامة. أيضاً عدد قليل نسبياً من المراكز (56%) تستخدم المطهرات. استفادت جميع المراكز من خدمات شركة متخصصة تعاقدت معها وزارة الصحة للتخلص من النفايات الطبية. ومع ذلك، كانت بعض المراكز (52%) لا تزال تتخلص من الإبر المستعملة والنفايات الحادة في النفايات العامة. كانت نسبة حدوث إصابات بالإبرة بين عاملي الرعاية الصحية في العام السابق 17.9%، مع عدم وجود فرق كبير بين الأطباء (17%) والممرضات (18.3%). بين الذين عانوا من إصابات، 52% كانوا أثناء إعادة غطاء الإبرة و64% أو انثناءها قبل التخلص منها.

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### فاشية التسمم الغذائي في محافظة تربة بالطائف، المملكة العربية السعودية: ١٦ يناير ٢٠١٧م (١٤٣٨هـ)

هي أيضاً واحدة من أكثر أسباب التسمم الغذائي شيوعاً في المملكة العربية السعودية. الأسباب وراء العدوى هي على الأرجح تعامل غير آمن للحوم الدجاج أثناء تحضير الشاورما.

تحتاج وزارة الصحة إلى التنسيق مع السلطات الأخرى لتكثيف الإشراف على المطاعم ومقدمي الأغذية، بما في ذلك التفتيش الدوري الصارم للموردين والمطاعم وفحص معدي الأطعمة. من المهم أيضاً تنقيف معدي الأطعمة على التعامل السليم وأيضاً تعزيز الإجراءات التي يتبعها الموظفون الطبيون في غرف الطوارئ فيما يتعلق بالإخطار والإدارة المناسبة للحالات بما في ذلك جمع العينات المطلوبة.

إعداد: د. أبو طالب السيد، د. سامي المدرع.

في يوم الاثنين ١٦ يناير ٢٠١٧م، بدأ وصول حالات تسمم غذائي إلى مستشفى تربة العام ومستشفى الملك فيصل ومستشفى الأطفال في مدينة الطائف، تشكو من أعراض آلام في البطن والإسهال والقيء والحمى، وذلك خلال ٩ إلى ٧٢ ساعة من تناول الطعام من مطعم محلي يوم الأحد ١٥ يناير.

أجرت فرق من مديرية الشؤون الصحية في الطائف وبرنامج الوبائيات الحقلية (FETP) استقصاءً عن هذه الفاشية واتخذت تدابير وقائية. ويشمل ذلك تعقب الحالات، وإغلاق المطعم ومعاينته، وجمع العينات المختبرية من المرضى وجميع العاملين في المطعم (فحص البراز ومسحات من المستقيم، وتحت الأظافر، الحلق والأنف)، وكذلك عينات من بقايا الغذاء والأواني. وقد تم تعريف الحالة على أنها كل شخص تناول الطعام من المطعم يوم الأحد ١٥ يناير ٢٠١٧م، وقد ظهرت عليه أي أعراض من أعراض الجهاز الهضمي مثل آلام البطن أو الإسهال أو القيء أو الحمى في غضون ٩-٧٢ ساعة.

تم رصد ما مجموعه ١٤٥ شخصاً، منهم ٩٣ ذكور (٦٤٪) و ٥٢ من الإناث (٣٦٪). تراوحت أعمارهم بين ٤ سنوات و ٦٢ سنة بمتوسط ٣١ سنة. وجد أن جميع الحالات تناولت الطعام من نفس المطعم في الفترة من ١٥ إلى ١٦ يناير، أي تراوحت فترة الحضانة بين ٦-٤٨ ساعة (متوسط ١٢ ساعة). وقد وجد أن كل من تناول الشاورما تحديداً من المطعم في ١٥-١٦ يناير ٢٠١٧م ظهرت عليه أعراض المرض. كذلك، تم عزل السالمونيلا في ٤٥٪ من العينات المأخوذة من الحالات. وقد أظهرت زراعات البراز المأخوذة من معدي الطعام نمو السالمونيلا في واحدة من العينات.

لم تظهر جميع التزريعات من المواد الغذائية والمطعم أي نمو لأي مسببات الأمراض. ومع ذلك، أظهر التحقيق البيئي مستويات نظافة منخفضة في المطعم. تم اكتشاف أن إعداد الشاورما يستغرق من ١٢ إلى ١٥ ساعة على المشواة قبل بدء الطهي في الساعة الثانية بعد الظهر وتقدم بعد الساعة الرابعة عصراً.

يعتبر هذا سيناريو تقليدي لتفشي التسمم الغذائي بمصدر واحد وهو تناول الطعام في مطعم محلي معين في يوم ١٦ يناير ٢٠١٧م. وتشير البيانات السريرية والوبائية والمخبرية إلى أن السالمونيلا هي العامل المسبب على الأرجح لهذه الفاشية. وتعد عدوى بكتريا السالمونيلا واحدة من أكثر مسببات الأمراض شيوعاً التي تسبب الأمراض المنقولة بالغذاء والتي تصيب ملايين الأشخاص كل عام.

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### متجهات وفيات الحجاج في الحج خلال الفترة 2006-2016م (1427-1436هـ)

غالبيتهم من الذكور. كانت أمراض القلب هي السبب الرئيسي للوفاة طوال السنوات باستثناء عام 1436هـ حيث كان الإصابات هي السبب الرئيسي للوفيات.

كان معدل الوفيات مرتفعاً في الثلاث سنوات الأولى ثم بدأ في الانخفاض. وقد يعزى هذا الانخفاض إلى تعزيز تدابير مراقبة الحشود التي طبقتها السلطات منذ ذلك الحين. ثم انخفض معدل الوفيات أكثر منذ 1434هـ ويمكن ارجاع ذلك للخفض الذي فرضته المملكة في أعداد الحجاج (وخاصة حجاج الداخل). لسوء الحظ، ارتفع معدل الوفيات في عام 1436هـ (2015م) بسبب حادث التدافع في منى. أثر هذا الحادث المؤلم على جميع الفئات العمرية ولكن بصورة أعلى نسبياً على الفئات العمرية 40-49 و 50-59 سنة.

إعداد: د. صفية الديبسي ، د. سامي المدرع.

تعتبر مدينة مكة المكرمة بعدد سكانها البالغ 1.6 مليون نسمة وجهة دينية للمسلمين من أكثر من 166 دولة لاداء الحج والعمرة. هناك ما يقدر بنحو 20 في المئة زيادة منتظمة في عدد السكان على مدار العام؛ بينما خلال النصف الثاني من شهر رمضان وموسم الحج، يتضاعف عدد السكان ثلاث مرات تقريباً. بحثت هذه الدراسة أعداد الوفيات وأسبابها وتباينها حسب العمر والجنس والجنسية؛ بالإضافة إلى ملاحظة متجهات الوفيات لسكان مكة وزوارها خلال عشر سنوات 2006-2016 (1427-1436هـ).

تم تعريف فترة الحج بأنها الفترة بين 15 ذو القعدة وحتى نهاية محرم. وتم تعريف وفيات الحجاج بالذين ماتوا خلال فترة الحج وحالتهم في السجلات أنهم حج/عمرة. تم تعريف وفيات المعتمرين بالذين ماتوا خارج فترة الحج وحالتهم في السجلات أنهم حج/عمرة. تم تعريف غير الحجاج على أنهم الذين ماتوا في أي وقت خلال العام وحالتهم في السجلات ليست حج/عمرة. تضمنت المواقع مدينة مكة والمشاعر المقدسة (منى، عرفة، مزدلفة) والمدينة المنورة (حج/عمرة فقط). تم تقدير العدد الإجمالي السنوي للحجاج لكل بلد من خلال حصة الحجاج التي تقررها المملكة العربية السعودية لكل بلد.

أجريت مراجعات للسجلات باستخدام شهادات الوفاة وقواعد بيانات الوفيات بوزارة الصحة خلال الفترة 1427-1436هـ لاستخراج العمر والجنس والجنسية وحالة حج/عمرة وتاريخ ووقت الوفاة وسبب الوفاة. وتم إعادة تصنيف أسباب الوفاة الواردة في الشهادات إلى الأسباب الرئيسية.

من ضمن ما مجموعه 70,667 سجل وفاة وجد أن متوسط العمر الإجمالي هو 54.7 سنة. وتميل الوفيات إلى تزايد بين الأعمار 60 عاماً فأكثر (47.4%) وبين الذكور (58.7%). من إجمالي عدد الوفيات، كان 22.2% من الحجاج، و 8.2% من المعتمرين، و 69.6% من سكان مكة. بين كل الوفيات من الحجاج والمعتمرين والمقيمين، كانت غالبية أعمارهم 60 سنة فما فوق، ومعظمهم من الذكور. وقد مثلت وفيات الحجاج والمعتمرين 32% من جميع الوفيات. معظم الوفيات التي حدثت كانت خارج المستشفى (60.4%).

تراوحت معدلات الوفيات العام بين 40-68 حالة وفاة لكل 100,000 حاج سنوياً في مواسم الحج من عام 1427 إلى 1435هـ، ثم قفزت إلى 211 حالة وفاة لكل 100,000 حاج في السنة لموسم الحج لعام 1436هـ ويعود ذلك في الغالب إلى حادث التدافع في منى 2015م. أكثر أسباب الوفيات شيوعاً هي أمراض القلب (40%)، ومشاكل التنفس (22%)، والإصابات (17%)

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### نمط الإصابات بين الحجاج في مستشفى منى العام لموسم حج ١٤٣٨ هـ

المستشفى. بلغ مجموع عدد حالات الإصابات ١٣٧ حالة من أصل ١٨٣٥٠ حالة حضرت للمستشفى. عدد حالات الرجال (١٠٩) حالة (٨٠٪) بينما عدد حالات النساء (٢٨) حالة (٢٠٪). أغلب الحالات كانت بين عمر ال (٥٠-٧٠) سنة. (١٣١) تم خروجهم من المستشفى (٩١٪) بعد تلقيهم العلاج اللازم وقد تم تنويم (٦) حالات (٩٪). معظم الإصابات كانت كدمات (٣٦٪)، تلتها كسور العظام (٢٨٪) ثم الجروح القطعية (٢٥٪). وأهم الأسباب هي السقوط (٨٨٪)، التواء القدم (٢٣٪)، الانزلاق (١٨٪)، التدافع (٥٪)، الحروق (٤٪)، وحوادث السير (١٪).

إعداد: د. تركي العصلاني، د. شادي كامل، د. أمل النفيسي.

يجتمع أكثر من ٢ مليون حاج سنويا لأداء فريضة الحج. مع هذا العدد الكبير يعتبر حدوث الإصابات بين الحجاج وارد جدا ويمثل تحديا كبير للسلطات في المملكة العربية السعودية لسن قوانين واتخاذ إجراءات تقلل حدوثها. طبقا لمنظمة الصحة العالمية تعتبر الإصابات من الأسباب الرئيسية المؤدية للوفاة حول العالم. تم اجراء هذه الدراسة في مستشفى منى العام في منى (١٤٣٨هـ-٢٠١٧م) وسط الحجاج الذين يشكون من إصابات وقاموا بزيارة المستشفى. وقد هدفت الدراسة لقياس معدل انتشار حالات الإصابات بين المرضى في المستشفى، وتحديد أنواع الإصابات الواردة للمستشفى، وكذلك تحديد العوامل المساعدة لحدوث الإصابات. تم جمع المعلومات خلال الفترة ما بين ٨-١٥ ذو الحجة للحالات في أقسام الطوارئ، العيادات الخارجية والتنويم داخل

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## Selected notifiable diseases by region, Jan-Mar 2017

Disease	Riyadh	Makkah	Jeddah	Madinah	Taif	Qassim	Eastern	Hasa	Hafir Al-Batfn	Asir	Bisha	Tabuk	Hail	Al-Shammal	Jizan	Najran	Al-Jouf	Baha	Goriat	Gonfuda	Total
Measles	5	2	3	2	0	0	0	1	0	2	0	1	0	1	0	161	1	0	0	0	179
Mumps	1	9	1	0	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	15
Rubella	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	7
Varicella	11	20	164	70	99	50	442	76	67	11	7	41	9	27	30	79	2	0	5	23	1233
Meningitis mening.	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Meningitis other	0	0	11	7	1	30	16	5	0	0	0	13	2	2	3	7	0	0	0	3	100
Hepatitis B	169	181	466	175	68	18	84	126	0	13	3	32	1	18	154	21	4	9	0	67	1609
Hepatitis C	108	323	285	80	12	12	44	75	1	4	0	13	4	2	27	6	2	4	0	17	1019
Hepatitis unspecified	2	2	0	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	8
Hepatitis A	6	1	11	11	4	1	4	4	1	0	1	1	0	0	0	1	0	0	0	0	46
Typhoid & paratyphoid	0	0	2	24	0	2	10	3	1	0	0	1	0	0	0	0	0	0	0	0	43
Amoebic dysentery	0	0	270	18	17	0	237	87	2	2	0	0	0	0	5	17	0	0	0	0	655
Shigellosis	3	1	2	0	0	3	1	1	0	0	0	0	0	0	0	1	0	0	0	0	12
Salmonellosis	18	6	43	12	0	4	77	45	0	1	0	4	1	0	3	15	0	0	0	0	229
Brucellosis	44	40	22	44	52	192	100	30	71	80	85	14	33	163	3	147	7	40	15	2	1184
Dengue Fever	0	133	670	19	2	0	0	0	0	0	0	0	0	0	146	0	0	0	0	0	970
Khomra	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	4

## Comparisons of selected notifiable diseases, Jan - Mar 2016-2017

DISEASE	Jan-Mar	Jan-Mar	Change	Jan-Mar	Jan-Dec	DISEASE	Jan-Mar	Jan-Mar	Change	Jan-Mar	Jan-Dec
	2017	2016		%	2017		2016	2017		2016	%
Cholera	1	0	100	1	0	Meningitis mening.	1	3	-67	1	6
Diphtheria	1	0	100	1	2	Meningitis other	100	72	39	100	259
Pertussis	7	7	0	7	7	Hepatitis B	1609	1212	33	1609	4327
Tetanus,neonat	2	0	100	2	3	Hepatitis C	1019	545	87	1019	1947
Tetanus,other	21	9	133	21	20	Hepatitis unspecified	8	7	14	8	31
Poliomyelitis	0	0	0	0	0	Hepatitis A	46	21	119	46	100
Guilain Barre Syndrome	0	0	0	0	0	Typhoid & paratyphoid	43	23	87	43	164
Measles	179	20	795	179	125	Amoebic dysentery	655	618	6	655	2336
Mumps	15	4	275	15	14	Shigellosis	12	10	20	12	32
Rubella	7	12	-42	7	56	Salmonellosis	229	163	40	229	744
Varicella	1233	1450	-15	1233	4523	Brucellosis	1184	931	27	1184	4062
Dengue Fever	972	703	38	972	5428	AlKharma	4	9	-56	4	38

## Diseases of low frequency, Jan - Mar 2017

- \* Yellow fever, Plaque, Poliomyelitis, Rabies, Echinococcosis, Hemolytic Uremic Syndrome: No Cases
- \* Pertussis: 7 Cases (Eastern 1, Hasa 1, Riyadh 1, Jeddah 1, Tabuk 3)
- \* Neonatal Tetanus :2 Cases (Jeddah 1, Jazan 1)
- \* Tetanus Other: 21 Cases (Jeddah 20, Jazan 1)

## Selected notifiable diseases by region, Apr–Jun 2017

Diseases	Riyadh	Makkah	Jeddah	Madinah	Taif	Qassim	Eastern	Hasa	Hafr Al-Batin	Asir	Bisha	Tabuk	Hail	Al-Shamal	Jizan	Najran	Al-Jouf	Baha	Goriat	Gonfuda	Total
Measles	0	5	6	0	0	0	0	0	0	4	0	0	0	0	0	2	0	0	0	0	17
Mumps	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rubella	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Varicella	16	12	129	100	103	71	350	57	34	6	22	24	1	32	22	204	0	0	9	5	1197
Meningitis mening.	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
Meningitis other	0	0	30	6	3	10	0	3	0	0	0	3	3	3	0	3	2	0	0	0	66
Hepatitis B	161	200	338	164	65	48	123	70	1	2	5	23	3	18	117	29	12	2	1	25	1407
Hepatitis C	108	147	167	56	25	21	65	32	0	1	2	6	2	4	25	10	3	1	0	11	686
Hepatitis unspecified	9	0	0	4	0	9	1	1	0	0	0	0	0	0	0	0	0	0	0	0	24
Hepatitis A	8	1	10	7	1	0	5	1	0	0	0	0	3	0	0	1	0	0	0	0	37
Typhoid & paratyphoid	0	0	40	7	2	3	4	5	0	0	1	0	1	0	0	14	0	0	0	0	77
Amoebic dysentery	0	0	334	5	41	1	258	141	2	1	7	0	0	0	0	19	0	0	0	0	809
Shigellosis	1	0	3	5	0	0	3	1	1	0	0	0	0	0	0	1	0	0	0	0	15
Salmonellosis	43	13	76	19	3	0	55	34	0	0	0	0	0	0	1	8	0	0	0	1	253
Brucellosis	43	46	30	30	66	239	98	21	78	60	84	37	42	109	2	198	13	17	7	3	1223

## Comparisons of selected notifiable diseases, Apr - Jun 2016-2017

DISEASE	Apr-Jun		Change	Jan-Jun		DISEASE	Apr-Jun		Change	Jan-Jun	
	2017	2016		%	2017		Jan-Dec	2017		2016	%
Cholera	0	0	0	1	0	Meningitis mening.	2	0	100	3	6
Diphtheria	0	0	0	1	2	Meningitis other	66	59	12	166	259
Pertussis	5	3	67	12	7	Hepatitis B	1407	958	47	3016	4327
Tetanus,neonat	2	0	100	4	3	Hepatitis C	686	456	50	1705	1947
Tetanus,other	3	3	0	24	20	Hepatitis unspecified	24	4	500	32	31
Poliomyelitis	0	0	0	0	0	Hepatitis A	37	12	208	83	100
Guilain Barre Syndrome	0	0	0	0	0	Typhoid & paratyphoid	77	30	157	120	164
Measles	17	17	0	196	125	Amoebic dysentery	809	592	37	1464	2336
Mumps	0	5	-100	15	14	Shigellosis	15	9	67	27	32
Rubella	0	13	-100	7	56	Salmonellosis	253	157	61	482	744
Varicella	1197	1318	-9	2430	4523	Brucellosis	1223	1225	0	2407	4062

## Diseases of low frequency, Apr - June 2017

\* Yellow fever, Plaque, Cholera, Diphtheria, Mumps, Poliomyelitis, Rabies, Echinococcosis, Hemolytic Uremic Syndrome: No Cases

\* Pertussis: 8 Cases (Jeddah 3, Eastern 1, Hasa 1)

\* Neonatal Tetanus :2 Cases (Jeddah 2)

\* Tetanus Other: 3 Cases (Jeddah)



## Selected notifiable diseases by region, Jul—Sept 2017

Disease	Riyadh	Makkah	Jeddah	Madinah	Taif	Qassim	Eastern	Hasa	Hafr Al-Batin	Asir	Bisha	Tabuk	Hail	Al-Shamal	Jizan	Najran	Al-Jouf	Baha	Goriat	Gonfuda	Total
Measles	6	0	16	1	5	0	2	1	0	1	0	0	0	0	17	2	1	1	0	0	53
Mumps	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3
Rubella	3	0	1	0	2	0	2	2	2	0	0	0	0	1	1	0	0	0	0	0	14
Varicella	31	38	93	60	83	47	322	28	30	32	12	11	7	18	38	82	1	0	15	4	952
Meningitis mening.	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
Meningitis other	9	1	35	18	2	21	16	3	0	0	0	2	2	0	2	0	0	0	0	2	113
Hepatitis B	175	161	729	126	95	32	145	61	0	36	10	22	2	11	97	29	8	3	5	19	1766
Hepatitis C	120	132	360	64	34	16	85	41	0	16	2	2	3	5	19	17	6	0	0	8	930
Hepatitis unspecified	8	9	0	0	0	1	4	4	0	1	0	0	0	0	0	1	0	0	0	0	28
Hepatitis A	14	0	9	4	2	2	10	4	0	1	0	0	0	0	1	0	0	0	0	1	48
Typhoid & paratyphoid	1	0	6	15	3	1	36	13	0	0	2	0	0	1	1	18	0	0	0	1	98
Amoebic dysentery	1	0	534	14	37	5	533	125	1	0	5	0	0	0	0	7	0	0	1	0	1263
Shigellosis	1	0	1	2	0	0	6	2	0	0	0	0	0	0	0	0	0	0	0	0	12
Salmonellosis	81	24	133	20	1	1	222	45	0	1	3	1	1	0	5	6	5	0	0	2	551

## Comparisons of selected notifiable diseases, Jul - Sept 2016-2017

DISEASE	Jul-Sep	Jul-Sep	Change	Jan-Sep	Jan-Dec	DISEASE	Jul-Sep	Jul-Sep	Change	Jan-Sep	Jan-Dec
	2017	2016		%	2017		2016	2017		2016	%
Cholera	15	0	100	1	0	Meningitis mening.	3	1	200	3	6
Diphtheria	0	0	0	1	2	Meningitis other	113	71	59	166	259
Pertussis	8	4	100	12	7	Hepatitis B	1766	1250	41	3016	4327
Tetanus, neonate	0	1	-100	4	3	Hepatitis C	930	584	59	1705	1947
Tetanus, other	8	2	300	24	20	Hepatitis unspecified	28	14	100	32	31
Poliomyelitis	0	0	0	0	0	Hepatitis A	48	34	41	83	100
Measles	53	48	10	196	125	Typhoid & paratyphoid	98	52	88	120	164
Mumps	3	1	200	15	14	Amoebic dysentery	1263	906	39	1464	2336
Rubella	14	18	-22	7	56	Shigellosis	12	6	100	27	32
Varicella	0	790	-100	2430	4523	Salmonellosis	551	235	134	482	744

## Diseases of low frequency, Jul - Sept 2017

\* Yellow fever, Plaque, Poliomyelitis, Rabies, Neonatal Tetanus, Diphtheria, Hemolytic Uremic Syndrome: No Cases

\* Pertussis: 8 Cases (Jeddah 3, Eastern 3, Riyadh 2)

\* Cholera: 15 Cases (Jazan, imported)

\* Tetanus Other: 8 Cases (Jeddah)

## Selected notifiable diseases by region, Oct—Dec 2017

Disease	Riyadh	Makkah	Jeddah	Madinah	Taif	Qassim	Eastern	Hasa	Hafr Al-Batin	Asir	Bisha	Tabuk	Hail	Al-Shamal	Jizan	Najran	Al-Jouf	Baha	Goriat	Gonfuda	Total	
Measles	29	3	24	2	1	0	15	0	0	8	0	6	0	1	41	4	2	0	0	0	0	136
Mumps	0	0	5	1	0	0	3	1	0	0	0	0	0	1	0	0	0	0	0	0	0	12
Rubella	7	0	0	0	0	0	1	0	0	1	0	0	0	0	2	0	0	0	0	0	0	11
Varicella	39	9	107	70	98	64	462	28	40	57	11	10	10	14	36	74	0	15	0	7	1151	
Meningitis mening.	0	0	1	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	4
Meningitis other	8	0	35	9	0	19	19	3	0	1	1	4	2	1	0	2	2	18	0	2	126	
Hepatitis B	222	119	368	165	118	33	277	89	2	65	22	24	5	15	148	43	0	39	1	31	1786	
Hepatitis C	159	90	326	61	41	18	126	53	0	43	6	4	5	12	30	8	3	18	0	9	1012	
Hepatitis unspecified	4	0	2	3	2	2	6	0	0	0	1	0	0	2	1	1	0	0	0	0	24	
Hepatitis A	10	3	16	5	0	1	23	5	0	0	0	1	0	1	0	1	0	1	0	0	67	
Typhoid & paratyphoid	5	0	7	49	0	0	67	11	0	13	1	0	0	0	1	16	0	1	0	1	172	
Amoebic dysentery	5	2	289	10	42	15	415	55	3	14	0	0	0	1	4	4	20	0	0	0	879	
Shigellosis	2	1	0	0	0	1	4	2	0	0	0	0	0	0	1	0	0	0	0	0	11	
Salmonellosis	30	14	117	27	7	2	173	31	0	2	4	1	0	0	3	4	0	0	0	4	419	


## Comparisons of selected notifiable diseases, Oct - Dec 2016-2017

DISEASE	Oct-Dec		Change	Jan-Dec		DISEASE	Oct-Dec		Change	Jan-Dec	
	2017	2016		%	2017		2016	2017		2016	%
Cholera	0	0	0	0	0	Meningitis other	126	88	-25	358	243
Diphtheria	0	0	0	1	2	Hepatitis B	1786	1463	73	5561	4327
Pertussis	1	0	100	21	7	Hepatitis C	1012	796	42	3647	1947
Tetanus, neonat	0	2	-100	5	3	Hepatitis unspecified	24	26	-88	84	31
Tetanus, other	0	0	0	32	20	Hepatitis A	67	666	-90	198	100
Measles	136	40	-100	457	125	Typhoid & paratyphoid	172	78	219	390	164
Mumps	12	4	-100	47	14	Amoebic dysentery	879	787	40	3606	2336
Rubella	11	13	-100	61	56	Shigellosis	11	6	-81	50	32
Varicella	1151	966	-88	4533	4523	Salmonellosis	419	262	21	1452	744
Meningitis mening.	4	2	200	10	6	Brucellosis	1094	895	54	4692	4062

## Diseases of low frequency, Oct - Dec 2017

\*Yellow fever, Plaque, Poliomyelitis, Neonatal Tetanus, Rabies, Echinococcosis, Puerperal Sepsis, Hemolytic Uremic Syndrome: No Cases

\* Pertussis:1 Case (Eastern)



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