



المملكة العربية السعودية
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النشرة الوبائية السعودية

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MERS-CoV outbreak in Wadi Aldawasir General Hospital's renal dialysis unit, March 2017.

An outbreak of MERS-CoV occurred in Wadi Al Dawasir General Hospital in February 2017. MERS-CoV is a novel coronavirus that causes Middle East Respiratory Syndrome (MERS). It was first identified in Saudi Arabia in 2012 (1).

On Wednesday 1st March 2017, the emergency department at Wadi Al-Dawasir General Hospital (WDGH) received a patient complaining of shortness of breath and fever. The patient had Down syndrome, with a history of renal failure and regular hemodialysis. The patient was admitted as a severe pneumonia case. On the following day, PCR of the patient's nasopharyngeal swab tested positive for MERS-CoV. Eight days later (9 March), another six MERS-CoV confirmed cases were reported from WDGH. MERS-CoV patients were referred to a specialized hospital in Riyadh for proper isolation and treatment.

We sought to describe the magnitude of the outbreak, trace cases and contacts, describe patient healthcare-seeking behavior, and identify decision points by healthcare workers. We reviewed all medical records of cases from WDGH, the hospital renal dialysis unit, primary healthcare centers, and the referral specialized hospital. We interviewed relatives of patients and available staff from the hospital and health centers and reviewed the infection control measures in the WDGH renal dialysis unit.

We defined a confirmed case as any reported patient from Wadi-Aldawasir Governorate with laboratory-confirmed MERS-CoV infection during the period of

15/2–15/3/2017. We defined a probable case as any reported patient from Wadi-Aldawasir Governorate who had both clinical features and an epidemiologic link (defined as: exposure to a confirmed case, contact with dromedary camels, or reported consumption of camel products) but with absent or inconclusive laboratory results for MERS-CoV infection during the same time period.

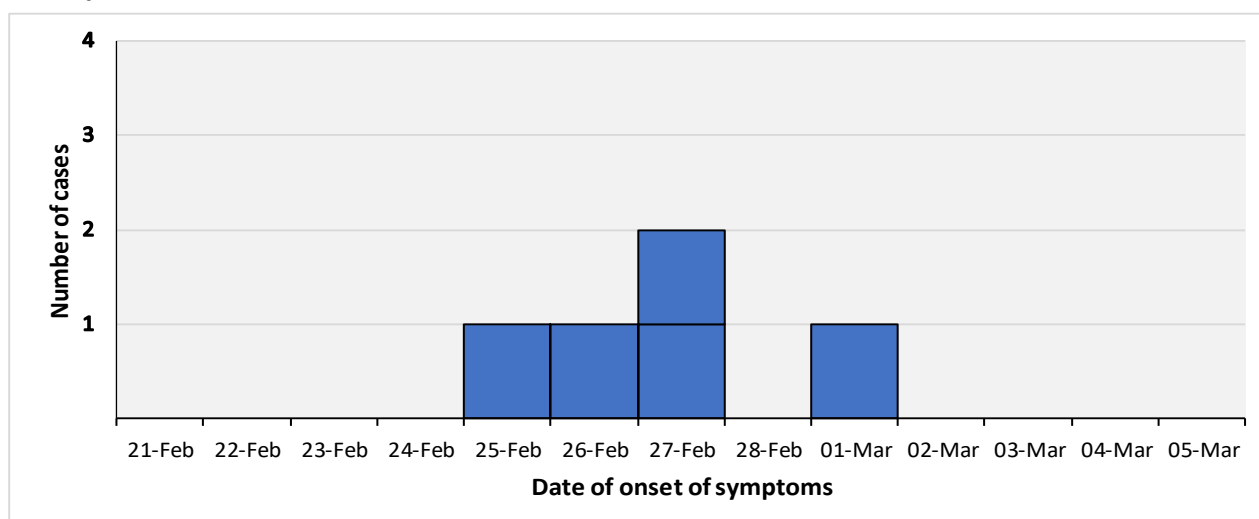
We identified a total of 11 MERS-CoV cases in the studied period in Wadi Aldawasir: 10 confirmed and 1 probable. Of these, 36% were male and 80% were Saudi. The mean age was 42 years (range: 29–70 years).

Five cases (45%) reported symptoms (Figure 1). They had respiratory symptoms including cough, fever, and shortness of breath. One case also had gastrointestinal symptoms. They sought medical assistance from various emergency departments. Only one case was suspected as MERS-CoV and identified at their first visit. The mean time from symptom onset to hospitalization was 9 days (range 5–11). All symptomatic and asymptomatic cases were hospitalized for isolation and close follow-up until nasal swabs of MERS-CoV turned negative.

The overall mean length of hospital stay after MERS-CoV detection was 15 (SD ± 7.2) days. The mean hospital stay for symptomatic cases was 10 (SD ± 5.2) days and 19 (SD ± 6.4) days for asymptomatic cases ($p < 0.05$). Asymptomatic cases stayed in hospital longer, since they required longer periods to clear viral

(Continued on page 3)

Figure 1: Symptomatic MERS-CoV cases by date of onset of symptoms in Wadi Aldawasir Hospital, February - March 2017



MERS-CoV outbreak in Wadi Aldawasir General Hospital's renal dialysis unit, March 2017. cont...

shedding as assessed by nasal swabs. The development of symptoms was significantly associated with higher age ($p<0.05$), being on hemodialysis ($p<0.05$), and shorter hospital stays ($p<0.05$).

Of the 11 cases, seven (64%) were patients on regular renal dialysis in WDGH, including the probable case, while the other 4 were close contacts of cases: 2 close family members and 2 healthcare personnel at the rehabilitation center.

No history of direct contact with dromedary camels was reported by cases, but 2 patients reported consumption of camels' milk. Most cases reported some animal contact: 2 cases reported direct contact and 7 cases reported indirect contact with other livestock animals.

Reported by: Safiah AlDubaisi, Sami Almudarra.

Editorial notes: MERS-CoV was first identified in Saudi Arabia in 2012. Saudi Arabia is the most affected country with 1983 cases, including 745 related deaths with a case-fatality rate of 38% (1). Most of the symptomatic cases in this outbreak tended to be older and had a chronic disease (i.e. renal disease), which is a known characteristic of MERS-CoV cases (2). Another known characteristic feature of MERS-CoV infections is the limited human-to-human transmission, mainly among family members, patients, and health care workers (2), which was typical of this outbreak also.

No animal reservoir or source of infection was identified in this outbreak. Although direct and indirect contact with livestock was reported by cases, none of them reported exposure to dromedary camels, which current scientific evidence suggests are the major reservoir host for MERS-CoV (2). Studies in Saudi Arabia have found a high prevalence of MERS-CoV among dromedary camels (56%) but none among sheep, goats, and cattle (3,4).

WHO currently advises that people with chronic health conditions (such as diabetes, renal failure, chronic lung disease, and immunocompromised person) should avoid contact with camels, drinking raw camel milk or camel urine, or eating undercooked camel meat (2). All cases except for one were not initially suspected as MERS-CoV infections, which indicates that health care workers had not been sensitized enough on suspicion of MERS-CoV infection and the appropriate infection prevention and control measures were not implemented. Health care work-

ers should refresh these skills regularly e.g. by looking for up-to-date information or guidelines or attending scientific meetings or trainings (2).

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Keywords: Middle East Respiratory Syndrome Coronavirus, Disease Outbreaks, Saudi Arabia

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Health knowledge, attitudes and practices among pilgrims at Prince Mohammed Bin Abdulaziz International Airport in Medina during Hajj 1439H (2018).

The Kingdom of Saudi Arabia (KSA) hosts the Hajj pilgrimage, the largest annual mass gathering in the world (1). The Saudi Ministry of Health issues requirements and recommendations for entry visas relevant to travellers visiting KSA for Hajj (2). These recommendations include vaccinations, health checks, and specific immunizations either at or prior to entry into KSA (2).

We assessed knowledge, attitudes and practices (KAP) of pilgrims about preventive, curative, hygienic and health promoting measures before and during the hajj season (1439H-2018 G) in order to identify gaps and address challenges.

A cross-section of pilgrims aged 18 years and above was selected from the top eleven pilgrims contributing nations who represented 75% of all pilgrims. We used a stratified random sampling technique with the proportion from each stratum (nation) depending on the quota granted to each country by the Saudi authorities. The countries were Indonesia, Pakistan, India, Bangladesh, Egypt, Nigeria, Turkey, Saudi Arabia, Sudan, Yemen, and Algeria. We recruited the participants from the Hajj and international terminals at Prince Mohammed Bin Abdulaziz International Airport in Medina.

We administered a structured questionnaire to collect data about sociodemographic factors, Hajj health preparations, and knowledge and attitudes towards travel and travel-related health behaviours.

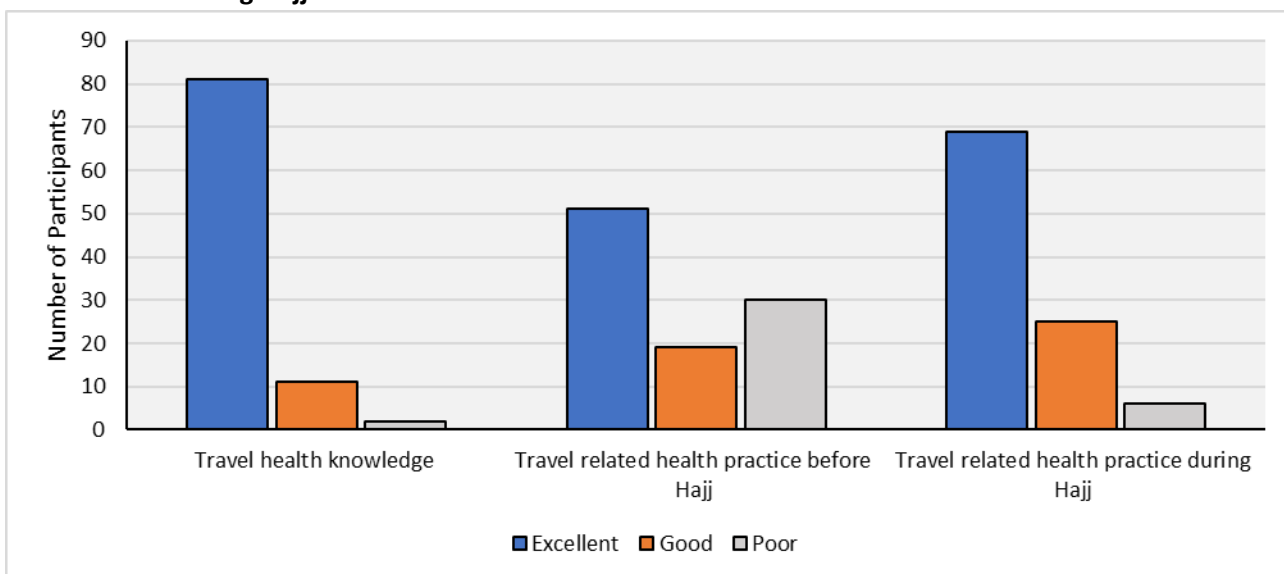
Depending on number of questions answered correctly, respondents were classified to have excellent (correctly answered 80% of questions), good (correctly answered 60–80%), or poor (correctly answered less than 60%) knowledge. Similarly, a positive attitude was identified by demonstrating willingness to adopt risk-avoiding behaviours.

Of 101 respondents, 64% were male. Most (58%) were aged 30-50 years, 26% were below 30 years and 15% were above 50 years old. About 55% of respondents were domestic pilgrims, but only 20% were Saudi. Most (68%) were married, 25% were single, and the remaining 7% were divorced or widowers. Most (65%) were educated to university level or higher, followed by 20% educated up to secondary school level.

Regarding travel, about 75% reported that they were attending hajj for the first time, and 43% had started health-related preparation less than 2 weeks before travel. The commonest sources of travel related health information were the internet (96%), friends or relatives (60%), travel agent (58%), and travel book (52%). Slightly over half (52%) stayed in the ritual places for more than 2 weeks.

Travel health knowledge of the respondents was high: 82% scored as excellent, 11% scored as good while 8% scored as poor. A positive attitude toward travel medicine was reported by 61 (60%) participants. Notably, 56 (56%) of respondents had sought pre-travel advice (Figure 1).

Figure 1: Distribution of respondents according to travel health knowledge and travel related health practice before & during Hajj

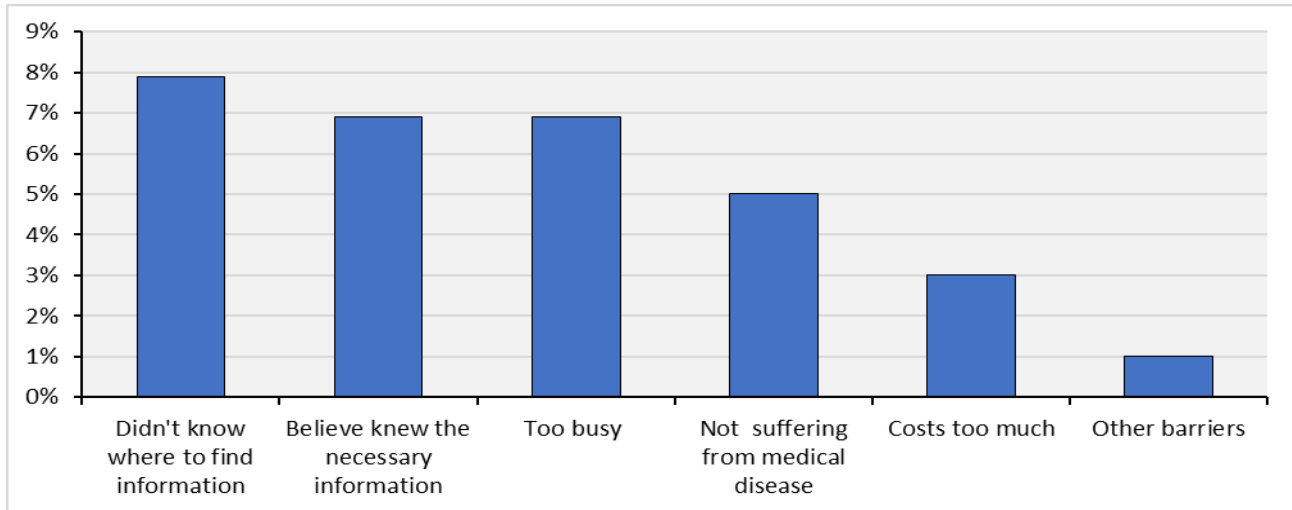


Health knowledge, attitudes and practices among pilgrims at Prince Mohammed Bin Abdulaziz International Airport in Medina during Hajj 1439H (2018). Cont...

The reported barriers to getting pre-travel consultation were “Didn't know where to find information”, reported by 8% of respondents, “I already knew the necessary information” by 7%, and “too busy” by 7% (Figure 2).

Regarding health protection behaviours, 100% reported using protective measures against injuries, 99% against heat-related conditions, 95% against food and waterborne diseases, 79% reported using protective measures against respiratory infections, and 70% against insects.

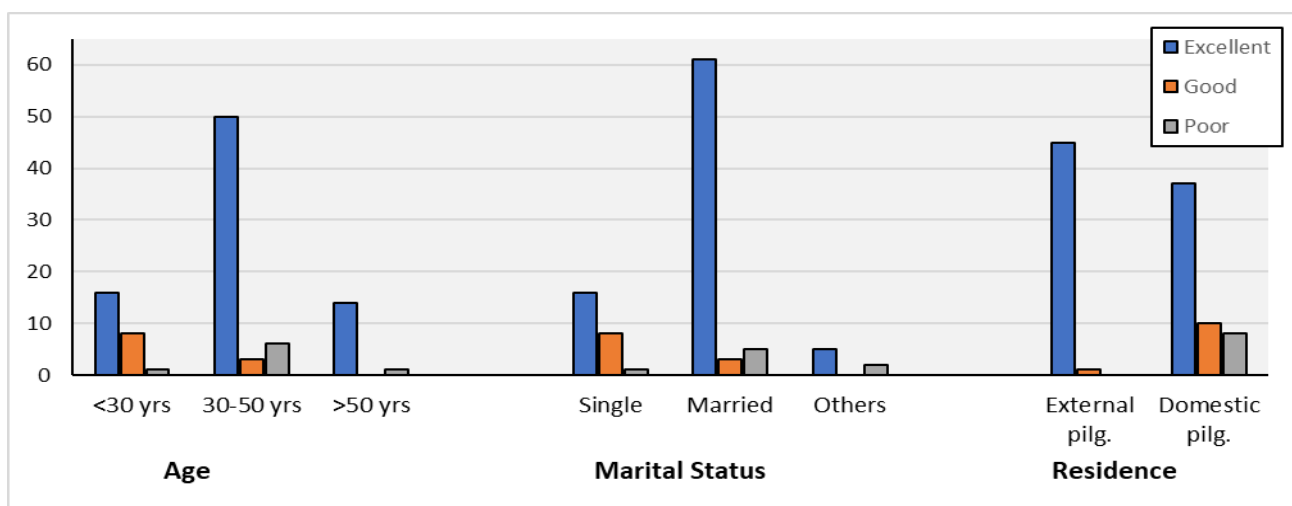
Figure 2: Barriers to pre-travel health-seeking practices



We found significant associations between having excellent travel-related health knowledge (Figure 3) and 30–50 years age ($p<0.01$), marriage ($p<0.01$), and being an international (external) pilgrim ($p<0.01$). It is noteworthy to mention that external pilgrims are required to have certain medical

procedures (vary by for countries) to get Hajj visa. This is most likely why they are more aware of travel-related health knowledge. Positive health attitudes were significantly associated with employment ($p<0.01$) and with university level or higher education ($p<0.01$).

Figure 3: Sociodemographic factors with significant associations with excellent travel-related health knowledge score among study participants in Medina, 1439H.



Health knowledge, attitudes and practices among pilgrims at Prince Mohammed Bin Abdulaziz International Airport in Medina during Hajj 1439H (2018). Cont...

Reported by: Eman Abd-Ellatif, Sami Almudarra, Lamia Alhomidan, Lujain Al-Assaf, Lamis AlGhamdi, Alwaleed Alharbi, Omar Albeladi, Asmaa AlQusibri.

Editorial notes: Hajj is a unique mass gathering because of its multidimensional complexity, due to religious, political, cultural, security, economic, operational, and logistic factors. It is the largest annual mass gathering in the world with 2-3 million pilgrims. The Saudi Ministry of Health (MOH) updates the health requirements and recommendations for travellers to Saudi Arabia for Hajj and Umrah on an annual basis (2).

These requirements document disease and conditions of special importance during Hajj and Umrah. The MOH requests that health authorities in pilgrims' countries provide basic health education to pilgrims prior to travel. This may include food safety, heat-exhaustion, and means of preventing infectious diseases (2). However, this study found that less than half of the respondents reported obtaining pre-travel health advice.

Similar studies conducted among departing Hajj pilgrims in Egypt, Australia, and France, have also highlighted the need for leveraging pre-travel health advice (3–5). Moreover, a KAP survey conducted in 2014 among various workers of the same airport found that more emphasis should be provided to educating airport workers on potential health threats at the airport (6).

Health authorities as well as pilgrims should arrange for professional risk-based pre-travel health advice to reduce potential mortality and morbidity associated with Hajj. Saudi authorities should consider continued promotion of health preventive measures to ensure that Hajj pilgrims are able to have a safe and healthy experience during Hajj.

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Keywords: Health Knowledge, Attitudes, Practice; Travel; Islam; Saudi Arabia

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Outbreak of acute gastrointestinal illness at a school in Arar, March 2017.

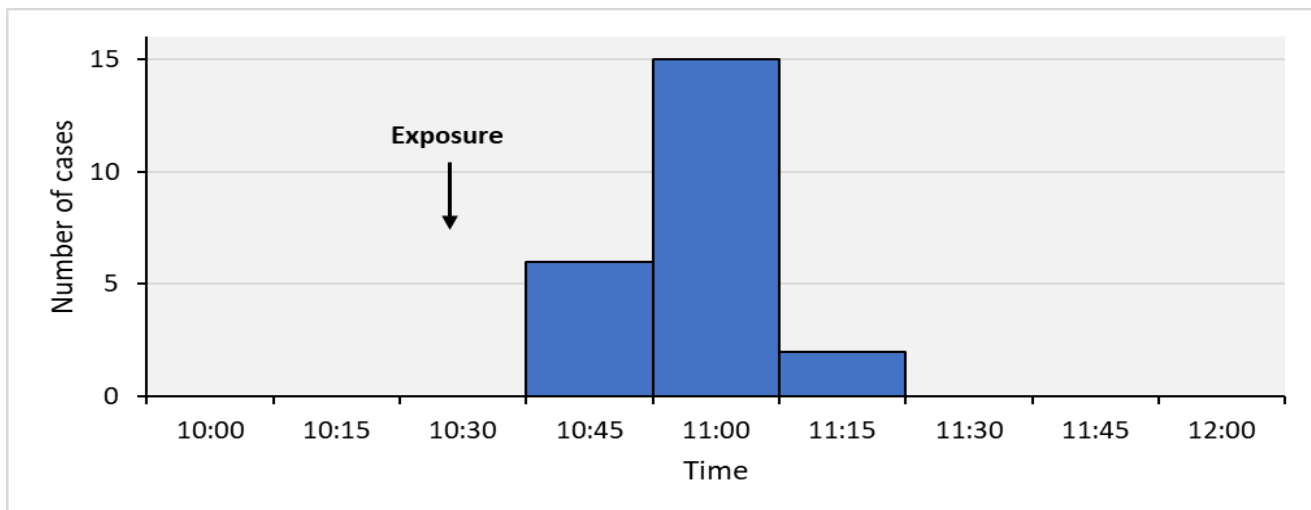
On Wednesday 8th March 2017, 28 students from a school in Arar developed acute gastrointestinal (GI) symptoms and were evacuated to local hospitals. We conducted an investigation to verify diagnosis, describe the outbreak, identify the cause, and provide recommendations to prevent future outbreaks in the school.

The school had 129 students across six classes. The school canteen is managed by the school administration. On the day of outbreak, as usual practice, the principal ordered 100 pies, 100 nectar juice, and 100 popcorn packs. The pies were provided by a local bakery, while the juice and the popcorn were commercial products mass produced by a known company.

During the school break (which starts at 10:30 am), the first student complained of vomiting and abdominal pain at around 10:45 am. After that, other students with the same complaints shortly followed. They were evacuated by the Red Crescent to three hospitals in Arar.

For the 100 at-risk students (who reported consuming items from the school canteen), the attack rate was 28%. Cases developed symptoms between 10:45 and 11:15 am, with an estimated incubation period of 30 minutes (Figure 1). The symptoms among affected students were abdominal pain (96%), vomiting (65%), diarrhea (39%), nausea (35%), headache (22%), fever (13%), and dizziness (9%). There

Figure 1: Cases of GI illness among students at a local school in Arar, Saudi Arabia, by time of onset of symptoms on 8 Mar 2017 (n=23).



was no bloody diarrhea. All cases were discharged on the same day.

Forty-four (96%) respondents reported having dinner at home on the night before. Thirty-three students (65%) had breakfast at home on the morning of the outbreak day, while 15 (33%) had not had breakfast at all. Only one student reported someone with similar symptoms at home. The most consumed item from the school canteen was pies by 96% (66% cheese and 30% thyme) followed by nectar (91%) and popcorn (64%). 31 (67%) students who consumed the pies noted that they were not fresh and had an unusual taste and smell. Laboratory analysis of clinical specimens from 13 students (48%) did not identify any pathogen. No results were obtained from the municipality from the food specimens.

We conducted a case-control study to identify the source of the outbreak. We defined a case as any student who developed at least one GI symptom (abdominal pain, vomiting, diarrhoea, nausea) after eating from the school canteen on Wednesday 8th March 2017; A control was defined as any student who ate from the canteen on the same day but did not report any symptoms. We matched controls to cases by school grade (classmate of the case). We interviewed 23 cases and 23 controls using a structured questionnaire. The odds ratio of being sick was 1.8 for cheese pies, 0.4 for thyme pies, 2.0 for nectar, and 0.3 for popcorn, but all these estimates were not statistically significant at the 0.05 level.

Outbreak of acute gastrointestinal illness at a school in Arar, March 2017. Cont...

On inspection of the concerned bakery, both the site and staff did not have a license to operate. The room where food was prepared was not organized and was unsafe for food preparation. (Figure 2). Food storage was also unsafe. It was noticed that raw ingredients were stocked very close to gasoline. Left-

over bread was mixed with freshly baked bread. Workers did not appear hygienic and did not have proper uniforms or protective tools e.g. gloves. The bakery supplied pies to 11 schools, but only one school reported cases of GI illness.

Figure 2: Preparation and storage rooms of the supplier bakery in Arar on 14th Mar 2017



Unfortunately, we could not confidently and evidently identify the source of the outbreak. We excluded any event out of the school as a cause of this outbreak since most of the students had had their dinner and breakfast meals at home. We also excluded the nectar juice and the popcorn as they were mass produced and no additional cases were reported elsewhere.

We believe that the cheese pies were the vehicle due to the perceived changes reported by the students, the potentially unsafe conditions in the bakery, and potential contamination at the bakery, the school, or during transport. Considering the very short incubation period and the dominating upper GI symptoms, the causative agent might be either an infectious e.g. *S. aureus* preformed enterotoxin or a chemical agent e.g. a heavy metal. Mass sociogenic illness was also probable due to no significant labora-

tory findings, and no reported cases from the other 10 schools supplied by the bakery.

Reported by: *Abdullah Al Manji, Mohamed Nageeb, Sami Almudarra*

Editorial notes: In this outbreak, all cases developed symptoms within a very short time span. Cases were students in one school in Arar town that reported consuming food items at the same time from the school canteen. This is a classical scenario of single source outbreak and the epidemic curve (Figure 1) was typical of a point source outbreak.

Clinical, epidemiological, and laboratory data were not conclusive to a specific pathogen as the cause for this outbreak. Some data suggests a preformed enterotoxin or a chemical agent because of the rapid onset of upper GI symptoms with little fever, the very short incubation period (15-45

Outbreak of acute gastrointestinal illness at a school in Arar, March 2017. Cont...

minutes), and the unsafe food preparation environment. Toxicology testing could have confirmed or excluded the presence of chemicals.

Mass psychogenic illness (MPI) is also a possible cause. The incident occurred at only one of eleven schools supplied by the bakery, although post-shipment contamination is also possible. The rapid onset of the illness in addition to the low attack rate (28%) also suggests MPI. Multiple symptoms were transient and benign, being mostly abdominal pain (96% of at-risk students) which is more subjective, although previous occurrences of MPI have shown high occurrences of somatization (1). Reporting unusual taste and odour in the pies might also be explained by the hysteric processes, a documented predictor of MPIs (2). MPI is more likely to occur in schools and factories settings especially when students or workers fear poisoning or any other event that may provoke mass anxiety (1–3).

The investigation of this outbreak has highlighted some other health problems that need improvement. For example, one-third of the interviewed students had not had their breakfasts at all on the day of the outbreak. The composition of the meal (pie, pop-corn, & nectar) should be improved in order to provide a balanced meal, especially since it was the first meal of the day for many students. The school principal and the school health department responsible should ensure that the food provided to students is supplied by licensed and pre-assessed providers.

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Keywords: Disease Outbreaks; Foodborne Diseases; Mass Behavior; Psychophysiological Disorders; Schools; Saudi Arabia

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ملخص باللغة العربية

فاشية فيروس (كورونا) في وحدة غسيل الكلى بمستشفى وادي الدواسر العام، فبراير-

رغم أن الدلائل العلمية الحالية تشير إلى أن الإبل هي العائل لفيروس كورونا، إلا أنه لم يتم تحديد أي حيوان محتمل كمصدر للعدوى في هذه الفاشية. حاليًا تنصح منظمة الصحة العالمية الأشخاص المصابين بأمراض مزمنة بتجنب مخالطة الإبل أو شرب لبن أو بول الإبل أو تناول لحوم الإبل الغير مطهية جيدًا. ختامًا، يجب على مسؤولي مكافحة العدوى والعاملين في مجال الرعاية الصحية عمومًا تحديث مهارات الاشتباه السريري وإجراءات مكافحة العدوى بانتظام من خلال البحث عن آخر المعلومات أو الأدلة أو حضور الأنشطة العلمية أو التدريبية.

إعداد: صفية الدبيسي، سامي المدرع

وقعت فاشية لفيروس متلازمة الشرق الأوسط التنفسية (كورونا) في مستشفى وادي الدواسر العام خلال شهري فبراير ومارس ٢٠١٧م. في يوم الأربعاء ١ مارس ٢٠١٧م، عندما استقبل قسم الطوارئ بالمستشفى مريضًا يشكو من ضيق في التنفس والحمى. وقد كان يعاني أيضًا من متلازمة داون وفشل كلوي وقيد جلسات غسيل كلى منتظمة في المستشفى نفسه. تم تنويم المريض كحالة التهاب رئوي، وجاءت نتائج التحليل لفيروس كورونا إيجابية في اليوم التالي. وبعد ثمانية أيام (٩ مارس)، تم الإبلاغ عن ست حالات إصابة بفيروس كورونا إضافية بالمستشفى، وقد تمت إحالتهم إلى مستشفى تخصصي في الرياض لغرض العزل والمتابعة.

قام برنامج الوبائيات الحقلي بالتنقيص في هذه الفاشية. تمت مراجعة جميع سجلات الحالات بالمستشفى، كما أجريت مقابلات مع أقارب المرضى وموظفي المستشفى والمراكز الصحية وتم تقييم تدابير مكافحة العدوى. التعريفات المستخدمة للحالات أثناء التنقيص كانت كما يلي: (أ) الحالة المؤكدة: أي مريض تم الإبلاغ عنه من محافظة وادي الدواسر مصاب بفيروس كورونا ومؤكّد مخبرياً خلال الفترة من ١٥/٢-٢٠١٧/٣/١٥م؛ (ب) الحالة المحتملة: أي مريض تم الإبلاغ عنه من محافظة وادي الدواسر ولديه أعراض وخطر وبائي (اتصال وثيق بالحالة المؤكدة)، مع عدم وجود نتائج مخبرية أو النتائج غير حاسمة لعدوى فيروس كورونا خلال هذه الفترة.

وجد ما مجموعه ١١ حالة إصابة بفيروس كورونا: منها ١٠ مؤكدة وواحدة محتملة خلال الفترة المذكورة. وكان ٣٦٪ منهم ذكور و٦٤٪ إناث و٨٠٪ منهم سعوديين. بلغ متوسط أعمارهم ٤٢ عامًا. كانت خمس من الحالات تشكو من أعراض الجهاز التنفسي. بلغ متوسط الفترة من بداية الأعراض وحتى العزل في المستشفى ٩ أيام، وذلك لعدم الاشتباه في المرض منذ البداية. بلغ متوسط فترة التنويم في المستشفى ١٤,٦ يومًا. وقد ارتبط ظهور الأعراض بشكل كبير مع زيادة العمر ووجود الفشل الكلوي. من بين الإحدى عشر حالة، كان هناك سبعة منهم (٦٤٪) يخضعون لغسيل الكلى بشكل منتظم، في حين كانت الحالات الأربع الأخرى على اتصال وثيق بالمرضى، منهم اثنين من أفراد أسر المرضى واثنين من موظفي الرعاية الصحية. لم يلاحظ أي تاريخ للاتصال المباشر مع الإبل بين الحالات، لكن كان هناك مريضين أبلغا عن شرب حليب الإبل.

ملخص باللغة العربية

المعرفة الصحية والمواقف والممارسات بين الحجاج في مطار الأمير محمد بن عبد العزيز الدولي بالمدينة المنورة خلال موسم حج 1439 هـ (2018م)

كانت المعرفة الصحية بين الحجاج المشاركين في هذه الدراسة مرتفعة: بحيث كانت معلومات 82% منهم ممتازة، و سجل 8% منهم فقط نتيجة ضعيفة. وقد شكل الذين أبدوا مواقف إيجابية (استعداد لتبني سلوك تجنب المخاطر) 60% من المشاركين. الموانع للحصول على استشارة قبل السفر كانت: "لا أعرف أين أجد المعلومات" من 8% من المشاركين، و "كنت أعرف بالفعل المعلومات الضرورية" بنسبة 7%، و "مشغول جداً" بنسبة 7%.

فيما يتعلق بسلوكيات الحماية الصحية، أبلغ 100% عن استخدام تدابير وقائية ضد الإصابات، و 99% ضد ضربات الشمس، و 95% ضد الأمراض المنقولة عن طريق الماء والغذاء، و 79% ضد التهابات الجهاز التنفسي، و 70% ضد نواقل الأمراض.

إعداد: إيمان عبد اللطيف، سامي المدرع، لمياء الحميدان، لجين العساف، لميس الغامدي، الوليد الحربي، عمر البلادي، أسماء الكسييري

تصدر وزارة الصحة بالمملكة العربية السعودية متطلبات وتوصيات للقادمين للحج سنوياً. تتضمن هذه التوصيات التطعيمات والفحوصات الصحية والسلوكية أثناء الحج. أجريت هذه الدراسة لتقييم معرفة ومواقف وممارسات الحجاج حول التدابير الوقائية والعلاجية والنظافة وتعزيز الصحة أثناء الحج، من أجل تحديد الثغرات والتصدي للتحديات.

تم اختيار عينة من الحجاج من صالات الحج والسفر الدولي في مطار الأمير محمد بن عبد العزيز الدولي في المدينة المنورة خلال موسم حج 1439 هـ (2018 م). قمنا بتصميم استبيان لجمع معلومات حول العوامل الاجتماعية والديموغرافية وتقييم معرفة الحجاج للاستعدادات الصحية للحاج قبل السفر، ومستويات معرفتهم ومواقفهم تجاه السلوكيات الصحية المتعلقة بالسفر.

من بين 101 من المستجيبين، كان 64% منهم من الذكور. معظمهم (58%) تراوحت أعمارهم بين 30-50 سنة. حوالي 55% منهم كانوا من حجاج الداخل. معظم المشاركين (68%) كانوا متزوجين، ومعظمهم (65%) تلقوا تعليماً إلى المستوى الجامعي أو أعلى.

فيما يتعلق بالسفر، أفاد حوالي 75% أن هذه هي مرتهم الأولى لأداء للحج. وأفاد 43% أنهم بدأوا في الاستعداد الصحي للحج خلال أقل من أسبوعين قبل السفر. المصادر الأكثر شيوعاً للحصول على المعلومات الصحية المتعلقة بالسفر بينهم كانت الإنترنت (96%)، ثم الأصدقاء أو الأقارب (60%)، وكيل السفر (58%)، و كتاب السفر (52%).

ملخص باللغة العربية

فاشية مرض الجهاز الهضمي الحاد في أحد المدارس بمدينة عرعر، مارس 2017م

لسوء الحظ، لم يتمكن من تحديد مصدر الوباء بثقة. نعتقد أن الفطائر كانت السبب الرئيسي بسبب التغييرات الملحوظة من قبل التلاميذ، والظروف غير الصحية في المخبز، واحتمالية تلوث الفطائر بعد اعداد الطلب في المخبز أو أثناء النقل أو بعد وصولها للمدرسة. قد يكون العامل المسبب إما معدياً مثل بكتيريا المكورات العنقودية أو احدى المعادن الثقيلة. كما يزال احتمال أنها حالات هستيريا جماعية وارداً في ظل النتائج المختبرية السالبة، والإبلاغ عن حالات مرضية من مدرسة واحدة فقط من بين 11 مدرسة.

إعداد: عبد الله المنجي، محمد نجيب، سامي المدرع

في يوم الأربعاء الموافق 8 مارس 2017م، أصيب حوالي 28 تلميذاً من مدرسة في عرعر بأعراض حادة في الجهاز الهضمي وتم نقلهم إلى المستشفى. قام برنامج الوبائيات الحقلي بالاستقصاء الوبائي للتحقق من التشخيص وتحديد سبب التفشي.

تتكون المدرسة من 6 فصول وتضم 129 تلميذاً. ويوجد مقصف في المدرسة تحت إدارة المدرسة. في يوم اندلاع المرض، قام مدير المدرسة كالعادة بطلب 100 فطيرة، 100 علبه عصير و100 عبوة من الفشار. تم الحصول على الفطائر من أحد المخازن المحلية، والعصير والفشار من إحدى شركات الأغذية المعروفة في أنحاء المملكة.

خلال فترة الاستراحة، والتي تبدأ في الساعة 10:30 صباحاً، اشتكى احد التلاميذ من القيء وآلام في البطن وذلك في حوالي الساعة 10:45 صباحاً. ثم تلاه تلاميذ آخرين بنفس الشكاوى حتى الساعة 11:15 ص. وقد قام الهلال الأحمر بنقلهم إلى ثلاثة مستشفيات في عرعر. بلغ معدل الإصابة 28% وبلغت فترة الحضانة حوالي 30 دقيقة. تنوعت الأعراض بين ألم البطن (96%)، القيء (65%)، الإسهال (39%)، الغثيان (35%)، الصداع (22%)، الحمى (13%)، والوار (9%). تم خروج جميع الحالات من المستشفى في نفس اليوم.

أفاد 96% من جميع التلاميذ بأنهم تناولوا وجبة العشاء في منازلهم في الليلة السابقة، كذلك تناول 65% منهم الإفطار في المنزل صباح يوم الفاشية، بينما لم يتناول 33% منهم الإفطار إطلاقاً. أبلغ واحد فقط من التلاميذ عن وجود حالة مماثلة في المنزل. أكثر المواد استهلاكاً من مقصف المدرسة كانت الفطائر بنسبة 96% (66% جبن و30% زعتر) تليها العصير (91%) ثم الفشار (64%). أفاد حوالي 67% من التلاميذ الذين أكلوا الفطائر أنها لم تكن طازجة وذات طعم ورائحة غير معتادة. قام الفريق بإجراء دراسة ضابطة (حالات وشواهد) لتحديد مصدر العدوى شملت 23 مريض و23 حالة ضابطة. لم يكن هناك أي ارتباط احصائي بين ظهور الأعراض وأي من أنواع الأطعمة المذكورة.

لم يكشف الفحص المختبري للعينات الحيوية من التلاميذ عن أي مسبب للمرض. كما لم يتم الحصول على نتائج من البلدية حول عينات الطعام. عند تفتيش المخبز المعني، لم يكن الموقع والموظفون لديهم ترخيص للعمل. وكان المخبز غير منظم وغير نظيف، كما لم يكن التخزين بطريقة سليمة وآمنة. على سبيل المثال وجدت بعض المواد الغذائية بالقرب من مواد خطرة (الديزل). على الرغم من ذلك كان المخبز يقوم بتزويد الفطائر لأحد عشر مدرسة بالمنطقة، لكن المدرسة المعنية فقط أبلغت عن حالات مرضية في ذلك اليوم.

Top Twenty Reported Diseases by Regions, Kingdom of Saudi Arabia, Q1 (Jan-Mar)

Diseases	Riyadh	Makkah	Jeddah	Taif	Madinah	Qassim	Eastern	Ahsa	Hafr Al-Batin	Asir	Bisha	Tabuk	Hail	Al-Shamal	Jizan	Najran	Baha	Al-Jouf	Goriat	Confida	Total
Influenza (Seasonal)	772	64	1427	47	246	10	95	52		33		18	28		57	56	2	1			2908
Hepatitis B	332	186	264	169	159	39	207	90	3	75	24	33	10	16	184	37	23		1	32	1884
Brucellosis	114	74	57	127	71	90	85	10	40	39	70	34	70	58	1	84	13	4	5	2	1048
Chicken pox	139	20	73	109	47	119	198	21	14	36	50	23	5	14	39	92	2		6	7	1014
Amoebiasis	33	15	141	107	15	17	452	47	3	68		1	7		6	17					929
Hepatitis C	138	180	143	61	67	19	100	39		34	6	1	4	2	26	23	20			7	870
Scabies	64	105	133	29	51	20	130	17	4	24	2	25	1		113	22	13				753
Measles	10	2	10	1	12	18		2	1	20		1		2	21	18	1	387	185	5	696
Pulmonary Tuberculosis	161	49	134	8	38	12	73	11	7	19		13	4	2	105	5	5	4	6	1	657
VHF - Dengue fever	2	73	356	2	30		1						1		106					1	572
Salmonella infection	151	30	84	3	29	2	145	27	1	5		4	2		9	7	3				502
Malaria	13	7	41	18	17	6	31	10	1	40	6	4		1	191	4	3		1	6	400
Animal Bite	2	4	3	42		149	19	1				21				29					270
Influenza Like Illness	225		11				10								5						251
Leishmaniasis Cutaneous	11		3	4	23	62	4	56		34	14	15	6		3	11					246
Extra-Pulmonary TB	61	10	57	3	3	3	22	2		9		2	1	2	36	2		1		4	218
Typhoid/paratyphoid fever	36		38	2	11	6	38	7	2	3	3	1	3		20	11	3			1	185
MERS	98	2	5			7	1	3	1	8	1	1		1	1	2		3			134
VHF-Dengue (severe) fever		44	22				1								1	1					69
Meningitis - Other	21		8		4	8	3	3				2			2	2	2	1		1	57

Top Twenty Reported Diseases by Gender, Age and Nationality, Kingdom of Saudi Arabia, Q1 (Jan-Mar) 2019

Diseases	Gender		Age Groups (Years)					Nationality	
	Male	Female	0-4	5-14	15-29	30-59	60 & above	Saudi	Non-Saudi
Influenza (Seasonal)	1469	1439	589	457	510	885	466	1983	925
Hepatitis B	1160	724	13	5	208	1312	345	1454	429
Brucellosis	807	241	37	144	251	486	130	662	385
Chicken pox	676	338	91	282	403	219	19	682	332
Amoebiasis	549	380	153	139	250	329	58	590	339
Hepatitis C	509	361	5	3	93	485	284	601	269
Scabies	502	251	76	173	202	261	41	398	355
Measles	362	334	563	72	29	31	1	667	29
Pulmonary Tuberculosis	479	178	8	7	224	326	92	286	371
VHF - Dengue fever	456	116	20	25	160	334	33	217	355
Salmonella infection	267	235	193	59	85	119	46	353	149
Malaria	329	71	13	39	150	178	20	151	249
Animal Bite	218	52	18	30	79	129	14	168	102
Influenza Like Illness	118	133	22	30	58	90	51	176	75
Leishmaniasis Cutaneous	198	48	18	32	75	111	10	135	111
Extra-Pulmonary Tuberculosis	162	56	4	6	79	110	19	98	120
Typhoid / paratyphoid fever	110	75	40	58	29	50	8	94	91
MERS	101	33			17	74	43	95	39
VHF - Dengue (severe) fever	53	16	2	8	23	30	6	47	22
Meningitis - Other	35	22	24	7	9	12	5	45	12

Top Twenty Reported Diseases, National Surveillance data and Trend, Kingdom of Saudi Arabia, Q1 (Jan-Mar) 2019

Diseases	Current Year 2019			Previous Year 2018		
	Quarter-1 Jan-Mar 2019	Cumulative total since 1st January	Current rate*	Quarter-1 Jan-Mar 2018	Cumulative total since 1st January	Previous rate*
Influenza (Seasonal)	2908	2908	8.57	2181	2181	6.58
Hepatitis B	1884	1884	5.55	2044	2044	6.17
Brucellosis	1048	1048	3.09	1322	1322	3.99
Chicken pox	1014	1014	2.99	1262	1262	3.81
Amoebiasis	929	929	2.74	801	801	2.42
Hepatitis C	870	870	2.56	871	871	2.63
Scabies	753	753	2.22	299	299	0.9
Measles	696	696	2.05	338	338	1.02
Pulmonary Tuberculosis	657	657	1.94	809	809	2.44
VHF - Dengue fever	572	572	1.68	798	798	2.41
Salmonella infection	502	502	1.48	290	290	0.87
Malaria	400	400	1.18	260	260	0.78
Animal Bite	270	270	0.8	81	81	0.24
Influenza Like Illness	251	251	0.74	52	52	0.16
Leishmaniasis Cutaneous	246	246	0.72	123	123	0.37
Extra-Pulmonary Tuberculosis	218	218	0.64	242	242	0.73
Typhoid AND/OR paratyphoid fever	185	185	0.54	82	82	0.25
MERS	134	134	0.39	66	66	0.2
VHF - Dengue (severe) fever	69	69	0.2	190	190	0.57
Meningitis - Other	57	57	0.17	49	49	0.15

* Rate per 100,000 Population

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Top Twenty Reported Diseases by Regions, Kingdom of Saudi Arabia, Q2 (Apr-Jun)

Diseases	Riyadh	Makkah	Jeddah	Taif	Madinah	Qassim	Eastern	Ahsa	Hafr Al-Batn	Asir	Bisha	Tabuk	Hail	Al-Shamal	Jizan	Najran	Baha	Al-Jouf	Goriat	Gofuda	Total	
Hepatitis B	267	190	214	124	80	52	185	77	1	65	10	12	4	24	187	39	26			18	1575	
Influenza (Seasonal)	380	43	650	57	189	10	65	49		30	1	3	22	0	45	9	3	2				1558
Brucellosis	160	70	83	144	119	115	87	17	39	66	52	42	94	60	4	83	10	1	4	2		1252
Chicken pox	118	28	78	156	46	72	172	26	30	45	32	8	9	12	46	86	1	1	12	4		982
Amoebiasis	26	3	129	61	14	22	471	60	2	84		6	2	1	3	26						910
Pulmonary Tuberculosis	173	51	193	21	27	11	62	11	15	19	1	6	6	4	99	8	4	6	7	5		729
Hepatitis C	106	106	122	95	35	18	85	6	0	50	1	2	2	4	16	18	13		8	5		692
VHF - Dengue fever	2	73	473		65		1								20							634
Salmonella infection	166	22	77	1	27	1	153	41	1	2	2	8	6		4	10	6		2			529
Scabies	27	1	82	29	17	11	87	20	4	10	2	9		2	79	6	9		2			397
Animal Bite			1	72		152	21	1				8				59						314
Malaria	20	4	32	10	13	4	58	2	1	9	1	5	1	4	69	5	1			1		240
Extra-Pulmonary TB	67	14	42	1	8	2	28	5	2	4		1			33	1	1				2	211
Influenza Like Illness	89		33			1	8															131
Typhoid/paratyphoid fever	17		11	1	19	8	41	13		1			5	1		3	1					121
Leishmaniasis Cutaneous	5		4	4	20	13	2	13		23	2	2	1	1	2	15						107
Bordetella/Pertussis	37		8	7		3	4	11		8		1			1		2					82
VHF-Dengue (severe) fever		12	21		2			1							25	2						63
Measles	4		4		4	1	1	1		5				1	10			7	23			61
Hepatitis A	15	5	4	5	2		6	3		1		2			1			2	14			60

Top Twenty Reported Diseases by Gender, Age and Nationality, Kingdom of Saudi Arabia, Q2 (Apr-Jun) 2019

Diseases	Gender		Age Groups (Years)					Nationality	
	Male	Female	0-4	5-14	15-29	30-59	60 & above	Saudi	Non-Saudi
Hepatitis B	975	598	18	18	166	1117	253	1127	448
Influenza (Seasonal)	814	744	341	185	303	489	238	1131	426
Brucellosis	987	264	53	168	302	581	148	862	390
Chicken pox	625	356	131	181	391	249	30	668	314
Amoebiasis	595	315	156	107	242	367	37	557	353
Pulmonary Tuberculosis	508	221	14	13	242	366	94	325	403
Hepatitis C	402	290	7		70	378	237	469	223
VHF - Dengue fever	524	110	19	40	197	349	29	178	456
Salmonella infection	282	247	263	50	74	106	35	399	130
Scabies	260	137	48	56	111	163	19	260	137
Animal Bite	247	67	24	45	89	140	16	179	135
Malaria	192	48	11	21	98	101	9	43	196
Extra-Pulmonary Tuberculosis	138	73	5	11	80	89	26	106	105
Influenza Like Illness	75	56	26	15	33	44	13	100	31
Typhoid / paratyphoid fever	61	60	15	25	29	48	4	57	64
Leishmaniasis Cutaneous	78	29	13	16	28	43	7	70	37
Bordetella/Pertussis	41	41	76	1	1	2	2	78	4
VHF - Dengue (severe) fever	43	20	1	6	20	31	5	35	28
Measles	28	33	49	5	1	6		51	10
Hepatitis A	43	17	6	15	26	10	3	41	19

Top Twenty Reported Diseases, National Surveillance data and Trend, Kingdom of Saudi Arabia, Q2 (Apr-Jun) 2019

Diseases	Current Year 2019			Previous Year 2018		
	Quarter-2 Apr-Jun 2019	Cumulative total since 1st January	Current rate*	Quarter-2 Apr-Jun 2018	Cumulative total since 1st January	Previous rate*
Hepatitis B	1575	3459	10.13	1772	3816	11.44
Influenza (Seasonal)	1558	4466	13.08	595	2776	8.32
Brucellosis	1252	2300	6.73	1456	2778	8.33
Chicken pox	982	1996	5.84	1273	2535	7.6
Amoebiasis	910	1839	5.38	822	1623	4.87
Pulmonary Tuberculosis	729	1386	4.06	705	1514	4.54
Hepatitis C	692	1562	4.57	828	1699	5.09
VHF - Dengue fever	634	1206	3.53	3052	3850	11.55
Salmonella infection	529	1031	3.02	468	758	2.27
Scabies	397	1150	3.37	6087	6386	19.15
Animal Bite	314	584	1.71	115	196	0.59
Malaria	240	640	1.87	214	474	1.42
Extra-Pulmonary Tuberculosis	211	429	1.26	234	476	1.43
Influenza Like Illness	131	382	1.12	6	58	0.17
Typhoid AND/OR paratyphoid fever	121	306	0.9	94	176	0.53
Leishmaniasis Cutaneous	107	353	1.03	78	201	0.6
Bordetella/Pertussis	82	117	0.34	6	9	0.03
VHF - Dengue (severe) fever	63	132	0.39	459	649	1.95
Measles	61	757	2.22	496	834	2.5
Hepatitis A	60	103	0.3	45	90	0.27

* Rate per 100,000 Population

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Data Management Unit, Assistant Agency for Preventive Health, Ministry of Health.

Top Twenty Reported Diseases by Regions, Kingdom of Saudi Arabia, Q3 (Jul-Sep)

Diseases	Riyadh	Makkah	Jeddah	Taif	Madinah	Qassim	Eastern	Ahsa	Hafr Al-Batin	Asir	Bisha	Tabuk	Hail	Al-Shamal	Jizan	Najran	Baha	Al-Jouf	Goriat	Gonfuda	Total
Hepatitis B	265	148	299	100	110	32	164	62	2	77	16	17	6	20	181	29	9	3		23	1563
Brucellosis	121	73	71	110	83	62	70	19	24	40	48	39	144	26	3	79	15	26	11	5	1069
Amoebiasis	26	2	129	79	9	8	417	55	6	105	1			3	2	30	3		1		876
Salmonella infection	180	41	230	1	34	1	223	82	6	9	2	3	3	1	10	9	7			1	843
Influenza (Seasonal)	200	134	249	29	43	4	36	25	1	18		1	3		8	6		1			758
Chicken pox	87	65	50	67	46	49	114	8	11	37	2	21	10	11	58	42	8	2	11	9	708
Hepatitis C	125	121	132	82	23	5	96	14		29	7	3	3	4	12	7	4		1	7	675
Pulmonary Tuberculosis	166	59	180	9	26	13	52	14	8	27	6	7	2	3	86	5	3	1	2	4	673
Malaria	50	51	68	31	50	5	66	10	2	28	5	14	6	4	19	15	4		2	4	434
Scabies	18	10	34	11	18	4	86	20	2	5	8	10	2	4	49	4	8	1	3	5	302
Animal Bite	6		1	23		170	24					8				61					293
VHF - Dengue fever	1	18	224	0	39	2	5	1							2						292
Extra-Pulmonary TB	66	9	54	2	6	2	12	3		11					34	3	3			1	206
Leishmaniasis Cutaneous	1				16	6	3	35		12	1	3	6		3	13	3				102
Typhoid/paratyphoid fever	16	4	10		9	9	33	4	1	3					1	10					100
Hepatitis A	13	5	6	2	8	2	11	7		6		3			3	1		21			88
Influenza Like Illness	53		1				4	1													59
Meningitis - Other	15	1	8	1	5	4	4	2			1	4				1					46
Mumps	11	1	2	2	5	1	8	1		1	1			3				2	2		40
Conjunctivitis	3			4			30										1				38

Top Twenty Reported Diseases by Gender, Age and Nationality, Kingdom of Saudi Arabia, Q3 (Jul-Sep) 2019

Diseases	Gender		Age Groups (Years)					Nationality	
	Male	Female	0-4	5-14	15-29	30-59	60 & above	Saudi	Non-Saudi
Hepatitis B	975	587	14	4	190	1063	291	1193	370
Brucellosis	795	273	45	142	269	488	125	747	322
Amoebiasis	546	330	150	88	240	358	39	530	344
Salmonella infection	448	395	357	71	119	222	74	615	228
Influenza (Seasonal)	423	334	151	72	131	248	155	457	301
Chicken pox	426	282	118	109	292	170	19	500	207
Hepatitis C	397	278	7	4	81	343	240	458	216
Pulmonary Tuberculosis	465	206	14	9	235	344	71	272	400
Malaria	368	66	7	18	169	216	24	21	413
Scabies	213	89	41	34	99	114	14	215	87
Animal Bite	238	55	20	40	60	158	15	170	123
VHF - Dengue fever	239	53	10	32	73	165	12	54	237
Extra-Pulmonary Tuberculosis	146	59	9	8	89	88	12	83	123
Leishmaniasis Cutaneous	71	31	10	15	27	42	8	66	36
Typhoid / paratyphoid fever	59	41	14	24	21	37	4	30	69
Hepatitis A	48	39	13	23	30	19	3	52	36
Influenza Like Illness	27	32	13	4	16	15	11	47	12
Meningitis - Other	28	18	24	4	3	10	5	32	14
Mumps	21	19	17	10	7	5	1	27	13
Conjunctivitis	15	23	5	2	6	22	3	30	8

Top Twenty Reported Diseases, National Surveillance data and Trend, Kingdom of Saudi Arabia, Q3 (Jul-Sep) 2019

Diseases	Current Year 2019			Previous Year 2018		
	Quarter-3 Jul-Sep 2019	Cumulative total since 1st January	Current rate*	Quarter-3 Jul-Sep 2018	Cumulative total since 1st January	Previous rate*
Hepatitis B	1563	5022	14.62	1678	5494	16.38
Brucellosis	1069	3369	9.81	1357	4135	12.33
Amoebiasis	876	2715	7.9	855	2478	7.39
Salmonella infection	843	1874	5.45	671	1429	4.26
Influenza (Seasonal)	758	5224	15.21	345	3121	9.3
Chicken pox	708	2704	7.87	890	3425	10.21
Hepatitis C	675	2237	6.51	782	2481	7.4
Pulmonary Tuberculosis	673	2059	5.99	774	2288	6.82
Malaria	434	1074	3.13	420	894	2.66
Scabies	302	1452	4.23	482	6868	20.47
Animal Bite	293	877	2.55	166	362	1.08
VHF - Dengue fever	292	1498	4.36	628	4478	13.35
Extra-Pulmonary Tuberculosis	206	635	1.85	225	701	2.09
Leishmaniasis Cutaneous	102	455	1.32	112	313	0.93
Typhoid AND/OR paratyphoid fever	100	406	1.18	100	276	0.82
Hepatitis A	88	191	0.56	104	194	0.58
Influenza Like Illness	59	441	1.28	12	70	0.21
Meningitis - Other	46	148	0.43	45	143	0.43
Mumps	40	117	0.34	47	125	0.37
Conjunctivitis	38	108	0.31	43	145	0.43

* Rate per 100,000 Population

**All above three tables are based on the
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information extracted from HESN database by the time of publishing of the bulletin Issue

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reports on surveillance issues or outbreak investigations. Please send contributions to: Surveillance and
Data Management Unit, Assistant Agency for Preventive Health, Ministry of Health.

Top Twenty Reported Diseases by Regions, Kingdom of Saudi Arabia, Q4 (Oct-Dec)

Diseases	Riyadh	Makkah	Jeddah	Taif	Madinah	Qassim	Eastern	Ahsa	Hafr Al-Batin	Asir	Bisha	Tabuk	Hail	Al-Shamal	Jizan	Najran	Baha	Al-Jouf	Goriat	Goufuda	Total
Influenza (Seasonal)	1008	150	1356	192	379	17	481	247		128		35	29	5	113	48	4	23		1	4216
Hepatitis B	208	204	249	91	102	49	234	69	1	108	22	42	7	20	221	36	19			42	1724
Hepatitis C	174	150	104	75	50	88	132	45	3	58	23	16	9	2	12	32	18	2	1	5	999
Chicken pox	98	20	76	74	30	66	205	29	13	22	19	25	5	18	53	110	3	9	47	1	923
Brucellosis	115	65	49	81	60	40	32	14	32	42	53	26	78	45	7	66	17	14	10	4	850
Salmonella infection	179	23	140	2	30	1	187	70	18	4		8		9	13	6	1	3			694
Pulmonary Tuberculosis	140	59	198	14	48	6	62	14	10	20	3	15	3	5	71	8	4	2	3	7	692
Amoebiasis	18	9	78	44	8	5	328	46	1	62		3	1		4	20			5		632
Influenza Like Illness	412	0	37	1	28	2	74								1			3			558
Malaria	52	22	73	29	51	15	71	22	5	38	5	5	8	3	100	8	5	7		6	525
VHF - Dengue fever	3	43	285	1	16		6	1		2					32		1				390
Scabies	43	8	52	26	25	7	114	10	8	3	1	24	1	15	48		4			1	390
Animal Bite	6	1		31		174	26			1		6				35					280
Extra-Pulmonary TB	71	10	32	2	1	2	31	3	1	7		6	2	2	33	2	5			1	211
Typhoid/paratyphoid fever	70		6		11	9	72	8		1					2	22	1	2		2	206
VHF-Dengue (severe) fever		27	54				1								99	2					183
Hand foot & mouth disease	6	2	1		4	19	32	10				71		2		3					150
Leishmaniasis Cutaneous	8		2		6	37	5	10		15	5	18	10		1	26					143
Mumps	12	1	9		6	2	11	2			5	1		2		1		3	3		58
Meningitis - Other	19	1	9	2	4	5	6	2		1		2		4	1						56

Top Twenty Reported Diseases by Gender, Age and Nationality, Kingdom of Saudi Arabia, Q4 (Oct-Dec) 2019

Diseases	Gender		Age Groups (Years)					Nationality	
	Male	Female	0-4	5-14	15-29	30-59	60 & above	Saudi	Non-Saudi
Influenza (Seasonal)	2110	2106	1210	965	486	937	617	3149	980
Hepatitis B	1065	659	15	8	156	1237	307	1267	393
Hepatitis C	579	417	7	5	115	552	319	717	250
Chicken pox	622	301	129	193	383	202	16	619	262
Brucellosis	649	200	31	84	210	412	110	563	268
Pulmonary Tuberculosis	486	206	5	8	234	349	94	275	400
Salmonella infection	346	347	300	66	103	176	49	468	191
Amoebiasis	394	238	95	64	197	248	28	327	266
Influenza Like Illness	282	276	179	93	55	143	88	381	122
Malaria	452	73	9	18	221	254	23	74	439
VHF - Dengue fever	327	63	11	19	116	231	13	81	298
Scabies	283	107	30	61	95	168	36	225	107
Animal Bite	229	51	19	35	71	139	16	153	123
Extra-Pulmonary Tuberculosis	148	63	5	6	74	104	22	100	107
Typhoid / paratyphoid fever	157	49	17	20	59	105	5	51	128
VHF - Dengue (severe) fever	141	42	4	11	57	95	16	88	89
Hand foot and mouth disease	79	71	95	53	1	1		112	35
Leishmaniasis Cutaneous	112	31	14	17	32	69	11	86	56
Mumps	32	26	38	9	3	8		41	14
Meningitis - Other	25	31	21	8	7	14	6	40	14

Top Twenty Reported Diseases, National Surveillance data and Trend, Kingdom of Saudi Arabia, Q4 (Oct-Dec) 2019


Diseases	Current Year 2019			Previous Year 2018		
	Quarter-4 Oct-Dec 2019	Cumulative total since 1st January	Current rate*	Quarter-4 Oct-Dec 2018	Cumulative total since 1st January	Previous rate*
Influenza (Seasonal)	4216	9440	27.31	2839	5960	17.66
Hepatitis B	1724	6746	19.52	1992	7486	22.18
Hepatitis C	999	3236	9.36	967	3448	10.22
Chicken pox	923	3627	10.49	978	4403	13.05
Brucellosis	850	4219	12.21	1098	5233	15.51
Salmonella infection	694	2568	7.43	628	2057	6.1
Pulmonary Tuberculosis	692	2751	7.96	854	3142	9.31
Amoebiasis	632	3347	9.68	809	3287	9.74
Influenza Like Illness	558	999	2.89	123	193	0.57
Malaria	525	1599	4.63	382	1276	3.78
VHF - Dengue fever	390	1888	5.46	202	4680	13.87
Scabies	390	1842	5.33	505	7373	21.85
Animal Bite	280	1157	3.35	236	598	1.77
Extra-Pulmonary Tuberculosis	211	846	2.45	261	962	2.85
Typhoid AND/OR paratyphoid fever	206	612	1.77	116	392	1.16
VHF - Dengue (severe) fever	183	340	0.98	44	777	2.3
Hand foot and mouth disease	150	239	0.69	192	359	1.06
Leishmaniasis Cutaneous	143	598	1.73	130	443	1.31
Mumps	58	175	0.51	71	196	0.58
Meningitis - Other	56	204	0.59	42	185	0.55

* Rate per 100,000 Population

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