

## النشرة الوبائية السعودية

### تصدرها وزارة الصحة

الوكالة المساعدة للطب الوقائي وبرنامج الوبائيات الحقلية  
المجلد السابع - العدد الثالث - يوليه - سبتمبر ٢٠٠٠

## An Outbreak of Gastroenteritis in a Child Care Center, 1999.

On 21st of March 1999 (4/12/1419) nine children were referred from a Child Care Center (CCC) and admitted to the Maternity and children hospital in Makkah. All suffered from diarrhea, vomiting, and one child had fever. They were all diagnosed as gastroenteritis on admission. One of these children died. The objectives of this study was to determine the magnitude of the outbreak, identify the source of infection, limit extent of gastroenteritis in the CCC and recommend suitable preventive measures.

The team from the Preventive Medicine Department in Makkah and the FETP visited the hospital on the same day. Stool and blood samples were obtained from the cases. Medical registers of the hospital were reviewed for the past year and no similar event was recognized. Accordingly, an investigation was initiated. Cases were defined as any child from the CCC complaining of diarrhea and/or vomiting, with or without fever, during the period of 4/12/1419 to 7/12/1419.

At the time of the outbreak, there were 106 children living at the center; 57 males (53.8 %) and 49 females (46.2 %), with ages ranging from 2 months to 7 years. There were 43 baby-sitters and 10 servants; 3 of whom worked in the kitchen. All the children were examined for signs of gastroenteritis, and the baby-sitters interviewed about history of diarrhea and vomiting in the last two weeks. A standard questionnaire containing data related to the clinical picture of gastroenteritis, onset of symptoms, age, sex, food consumed during the last 48 hours, and child-care during the last 48 hours, was completed for each child. Another questionnaire was filled by each baby-sitter, inquiring about methods of food prepara-

(Continued on page 14)

### Index

An Outbreak of gastroenteritis in a child care center, 1999, continued .....	13
The effect of MMR campaigns on measles in the Kingdom of Saudi Arabia.....	15
Bacillus cereus food poisoning outbreak in a Hospital .....	16
Training Course on the Economics of Public Health ..	17
SEB Arabic page.....	18
Calendar .....	19
Notifiable disease reports .....	20



# An Outbreak of Gastroenteritis in a Child Care Center ... cont

(Continued from page 13)

tion, bottle cleaning, child bathing, diaper changing, and whether any other person helped with child care. Nasal, throat, nail, and rectal swabs were obtained from every child-minder and servant. Two samples of water and residues of milk in bottles, food remains, and swabs from utensils and baby dummies were sent for chemical and bacteriological analysis.

Revision of the hospital register revealed that 9 cases of diarrhea and vomiting were admitted within a 21 hour time period, from 2 a.m. to 11.15 p.m. on 4/12/1419. Their ages ranged from 2 to 15 months (Mean 8.9 months  $\pm$  4.4), 6 were males (66.6%) and 3 were females (33.3%), 8 were discharged, and one died. The dead infant was a 6 months old male, who had been complaining of diarrhea and vomiting but no fever, and he died of dehydration as a result of gastroenteritis.

All the affected cases lived in one apartment in the CCC, consisting of 3 rooms. The first room was occupied by 6 children, 2 of whom were affected (Attack rate (AR) 33.3%), the second room was occupied by 9 children, 4 were affected (AR 44.4%), and the third room was occupied by 5 children, 3 were affected (AR 60%).

The epidemic curve showed that the median case occurred at 11.00 a.m., the first case at 2.00 a.m., while the last case at 11.15 p.m., all on 4/12/1419. The clinical picture of the disease manifested as diarrhea and vomiting, with or without fever.

With regards to the childrens' food consumption during the previous week and the 48 hours before the outbreak, all were found to have eaten the same food items at the same time. No association was found between any food item and the occurrence of gastroenteritis.

Results of the rectal swabs and the blood samples were negative for bacteriological growth. Enterobacter.sp. was isolated from milk residues, but was not pathogenic. These findings suggest that this outbreak was neither due to food poisoning, nor was it bacterial in origin. It was most likely viral

gastroenteritis.

The epidemic curve indicated that the most likely day of exposure was 3/12/1419 H. The minimum incubation period was 18 hours and the maximum was 39 hours (median 27 hours), which indicated Rotavirus etiology.

On reviewing medical records of the CCC, it was found that during the last week of Thul-Qaeda, one of the servants had suffered from diarrhea, nausea and vomiting, had received treatment, and was on leave since 1/12/1419 H. As reported by the other baby-sitters, this servant had shared in child care in the affected apartment and therefore might have been the source of infection of the first affected child (index case). Subtraction of the median incubation period from the onset of median case indicated that the date of exposure was most likely 3/12/19 H.

Revision of a baby-sitter's practice showed that she was responsible for bathing and diaper changing, in addition to food preparation and feeding the children. On reviewing the baby sitters' work schedules, it was found that baby sitter no. 2 had the highest attack rate, such that all the children under her care were affected. Table 1 demonstrates the percentage of ill Children under each baby sitter's care

in the CCC.

– Reported by: Dr. AbdulHafeiz Turkistani, Dr. Mussad Alsuliman, Dr. Ashry Gad Mohamed, Dr. Nasser Al Hamdan.

**Editorial notes:** The incubation period for rotavirus is known to range between 24 to 48 hours <sup>(1)</sup>. Rotavirus is a known cause of about half the cases of acute diarrhea in children under 3 years of age worldwide <sup>(2)</sup>. Furthermore, it has been reported that 50% of children in day care population infected with rotavirus excrete the virus without symptoms <sup>(3)</sup>.

This outbreak may be explained by the hypothesis that the hands of the sick baby sitter (no. 2) might have been contaminated while changing the diaper of the index case, after which she prepared milk bottles or food for the other children. It was recommended to increase the number of baby-sitters and to specify duties, having one assigned for changing of diapers, and another for food preparation and feeding, with emphasis on personal hygiene.

#### References:

1. Kapikian AZ. Viral Gastroenteritis. In: Viral Infections of Humans Epidemiology and

(Continued on page 19)

Table 1: The percentage of ill Children under each Baby-Sitter's care in the Child Care Center

Baby sitter no.	Ill Child	Well Child	% ill children
1	5	5	50
2	6	0	100
3	4	5	44.4
4	4	5	44.4
5	2	3	40
6	3	3	50
7	2	3	40
8	3	3	50



# The effect of MMR campaigns on Measles in the Kingdom of Saudi Arabia

To meet the goal of measles elimination by the year 2000, the kingdom conducted mass MMR vaccination campaigns for all school children. The first campaign was conducted in September - October 1998, targeting intermediate and secondary school children in the age group 12 - 18 years. In this campaign, 1,629,565 students were vaccinated, achieving a 96.4% coverage of the target children. In January and February 2000, the second stage of the campaign was conducted targeting all primary school children and first grade intermediate school children in the age group 6 -13 years, 2,412,078 students were vaccinated with a 96.6% coverage of the target children. MMR evaluation study revealed that the second campaign was targeted at the optimum time and for the optimum age groups, and the MMR vaccine used was justified to be safe. (Al-Mazrou et al. 2001)

In the year the first stage of the campaign was implemented (1998), 5519 measles cases were reported in the kingdom, and the number decreased to 617 in the year 2000; this is the lowest number of cases ever reported since measles surveillance began in Saudi Arabia in 1980. Indeed, the overall and age-specific measles incidences

were sharply decreased compared to that of 1998 (see the table below). Among the age of primary school children, 1390 measles cases were reported in 1999 and only 188 cases in 2000, compared to 2446 cases in 1998. This represents 43% and 92% reduction in measles incidence respectively.

The exact net effect of these campaigns on the disease incidence needs more time. Within the same strategies for measles elimination the laboratory diagnosis and surveillance of measles have been implemented since January 2001, rubella was added as another target for elimination as well. In addition, a genomic analysis of measles virus isolate will be considered to identify the type of measles virus circulating in the kingdom.

Several factors are responsible for the reduction in measles incidence in the kingdom. These factors include sustainability of a high measles two-doses vaccination coverage for children under one year (over 90%) and the high vaccination coverage among school-aged children (96% in both campaigns).

The present comprehensive measles and rubella elimination activities in the kingdom may lead to reduction in the number of susceptibles in the

population, especially among age groups more relevant for measles transmission (school children) and may reduce the speed at which new susceptibles enter into the population. Therefore, measles may not be recognized as a public health problem by medical professionals and parents. Accordingly, clinical diagnosis of these two Rash and Fever Syndromes (RFS) should be brought to the attention of all new graduates and recruits joining the medical services in the country.

High population density among illegal migrants in Jeddah and Makkah, and importation of the measles virus from endemic countries remain the main challenges for the elimination target.

– Reported by: Dr. Yacoub Al-Mazrou, Dr. Salah Tumsah. Department of Preventive Medicine, Ministry of Health, Riyadh, Saudi Arabia.

## References:

1. Al-Mazrou et al. Evaluation of MMR campaign: Immunogenicity and safety. Saudi Ministry of Health. 2001.
2. Saudi Ministry of Health, EPI surveillance registries, 2000.

Table 1: Percentage of measles reduction in 1999 and 2000, compared to 1998 measles cases

Age Group	Number of cases (% decreased)			
	1998	1999*	2000**	
< 1 yr.	433	350 (19%)	151	(85%)
1-4 yrs.	702	432 (38%)	167	(76%)
5-14 yrs.	2446	1390 (43%)	188	(92%)
15-44 yrs.	1853	640 (65%)	111	(94%)
45 & over	85	3 (96%)	0	(100%)
<b>Total</b>	<b>5519</b>	<b>2815 (49%)</b>	<b>617</b>	<b>(89%)</b>

\* The first campaign was implemented in September - October

\*\* The second campaign was implemented in January - February

The Saudi Epidemiology Bulletin welcomes reports from the regions. Please send your reports to the address shown below. 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  
e-mail: fetp@naseej.com.sa



# Bacillus cereus Food Poisoning Outbreak in a Hospital, Muscat, Oman, 1999.

On Friday evening, February 19, 1999, inpatients and their attendants at Khoula Hospital in Muscat, Oman, started complaining of diarrhea and mild abdominal pain after eating food prepared at the hospital restaurant. A case-control study was conducted to identify the source of the outbreak and to recommend control measures for the prevention of similar situations in the future. A case was defined as any person who had eaten the dinner prepared at Khoula Hospital on February 19, 1999, and who had developed diarrhea or abdominal pain, with or without vomiting, between Feb. 19 and 21, 1999.

An interview with the inpatients and their attendants was conducted using a standard questionnaire. These interviews revealed that some of the visitors had also eaten from the same food and had become symptomatic. These visitors were relatives of inpatients coming from remote areas (Bedouins), but who were staying close by the hospital.

It was revealed that, due to the spontaneous resolve of symptoms, no laboratory investigations were done either for the patients or the food items. However, it was found that samples of the yogurt, prepared in the restaurant and served at lunch on Feb. 19, 1999, as yogurt salad, in addition to the raw material of Harees, served at dinner of the same day, were still available. Specimens from these items were obtained for microbiological examination.

A total of 80 persons were interviewed; 40 cases and 40 controls. Among the cases 24 (60%) were females and 16 (40%) were males. Their ages ranged from 1 to 63 years with a median of 29 years. Twenty (50%) were inpatients, 16 (40%) were attendants and 4 (10%) were visitors. Thirty-one (77.5%) of the cases complained of diarrhea, nine (22.5%) and none complained of either fever or vomiting. The implicated meal was the dinner served on Friday, Feb. 19, 1999 (OR=21, CI 4.06-145.23) and the illness was associated with Harees

(OR = 21, CI 4.01-147.23). The dinner, including Harees, was prepared at 4 p.m. and was served at 6:30 p.m. *Bacillus cereus* was isolated from the specimen of the raw material of Harees with a count of  $> 10^5$  per gram. The time lapse between food consumption and the appearance of symptoms ranged from 4 to 28 hours with a median of 6 hours (Figure 1).

— Reported by: Dr. Majed S. Al-Zedjali and Dr. Mohamad A. Al-Mazrooa. Saudi Arabian Field Epidemiology Training Program.

**Editorial notes:** This is the first documented food poisoning outbreak resulting from *B. cereus* in Oman. Several food poisoning outbreaks due to *B. cereus* have been reported in health care facilities in the United States and Europe<sup>(1)</sup>. These are usually mild and self-limiting, going undiagnosed and unreported<sup>(2)</sup>. *B. cereus* strains, which produce the diarrheal syndrome have an incubation period of 6 to 24 hours and are characterized by diarrhea and abdominal cramps, sometimes vomiting, and rarely fever<sup>(3)</sup>. The early development of symptoms in some pa-

tients may be due to exposure to larger doses of the organism, underlying ill health, or incorrectly documented time of onset. The diagnosis of *B. cereus* food poisoning can be confirmed by the isolation of  $\geq 10^5$  organisms/gram from the implicated food item<sup>(3)</sup>.

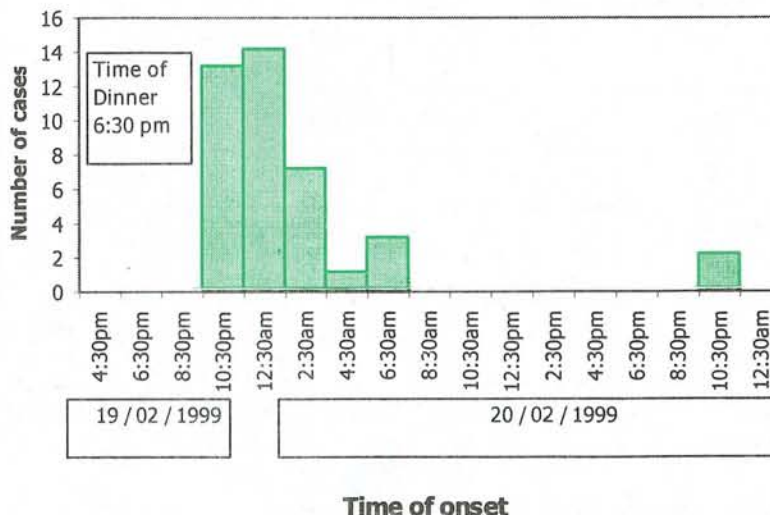
In *B. cereus* food poisoning, contamination of the food product generally occurs prior to cooking. If the food is prepared in such a manner that the temperature is maintained at 30-50°C, vegetative cell growth will occur. Spores can survive extreme temperatures, and when allowed to cool relatively slowly, they will germinate and multiply<sup>(3)</sup>.

To prevent the occurrence of similar outbreaks it is recommended that cooked food should be kept hot, at a temperature of at least 60°C<sup>(4)</sup>. Safe food preparation should be applied in all MOH establishments and food preparers must be trained about safe food-preparation practices before the issuance of a health certificate.

#### References:

1. Villarino ME, Vugia DJ, Bean NH, Jarvis WR, Hughes JM. Foodborne Disease Prevention in Health Care Facilities. In: Bennett JV, Brachman PS,

Figure 1: Cases of food poisoning by time of onset of symptoms, Khoula Hospital, Muscat, Oman, February 1999.





# Training Course on The Economics of Public Health

The Field Epidemiology Training Program organized a Training Course on the Economics of Public Health in conjunction with the Centers for Disease Control and Prevention (CDC), Atlanta, Georgia, USA, entitled "Prevention Effectiveness: Decision Analysis and Economic Evaluation". It was first held in Riyadh in the period from 9 to 12/3/1421 (11 to 14/6/2000), followed by Tabuk in the period from 16 to 19/3/1421 (18 to 21/6/2000). The symposium was presented by Dr. Jeffrey L. Fellows, Health Economist, and Dr. R. Doug Scott, Prevention Effectiveness Fellow, both from the CDC.

The primary goal of the symposium was to raise the awareness of Public Health authorities within the Ministry of Health of the importance of cost analysis. Other goals included providing an introduction to decision analysis and evaluation methods for practitioners responsible for conducting prevention effectiveness studies, and those making decisions on the basis of prevention effectiveness study results, in addition to improving the ability of health practitioners to frame, conduct, and interpret prevention effectiveness studies. The symposium also aimed to raise the skills of trainees in estimating the costs of preventive health services and utilizing this information in resource allocation and decision making.

The symposium covered a wide range of topics including:

- An overview of Prevention Effectiveness; the systematic assessment of the effect of public health policies, programs, and practices on the costs and outcomes of preventive health programs in a world of limited resources that have to be used as efficiently as possible, and its importance to public health programs and research activities.
- Identification of health problems, considering intervention options and strategies, and identifying health outcome

measures.

- Decision analysis; using analytic methods to inform complex decisions under conditions of uncertainty in which probabilities of events and their consequences are explicitly stated, what intervention option has the optimum expected value, lowest cost to implement, and highest number of prevented cases.
- Economic evaluation of preventive public health programs using applied analytic methods to identify, measure and compare the costs and consequences of alternative prevention strategies, how intervention outcomes justify their costs, and what additional benefits can be gained with additional resources.
- Related economic evaluation issues such as cost-benefit, cost-utility, cost-effectiveness,

and sensitivity analyses, in addition to basic cost components; direct, indirect, intangible and total costs of an economic evaluation.

- Methods of evaluating a Health Economic study and Basic outcome components whether health related or non-health related.
- Several case studies were presented as training materials.

The symposium was attended by over 60 trainees and health workers from various divisions of the Ministry of Health and Health Regions. This symposium demonstrates the continuing cooperation between the Field Epidemiology Training Program and the Centers for Disease Control and Prevention (CDC) in the training of Saudi personnel within various public health specialties.

Photo of participants in the course in Riyadh





## ملخص باللغة العربية

بداية تطبيق الاستقصاء الوبائي لمرض الحصبة بالمملكة العربية السعودية في عام ١٩٨٠ م. و بالفعل فإن إجمالي الحالات شهد تناقصاً واضحاً بالمقارنة مع عدد الحالات في عام ١٩٩٨. أما بين طلاب المدارس الابتدائية، فقد تم التبليغ عن ١٨٨ حالة حصبة في عام ٢٠٠٠، مقارنة بـ ١٣٩٠ حالة في عام ١٩٩٩، و ٢٤٤٦ حالة في عام ١٩٩٨، مما يمثل انخفاضاً بمعدل ٤٣% و ٩٢% على التوالي.

و من خلال نفس الاستراتيجية المتبعة للقضاء على مرض الحصبة، فقد تم تطبيق التحاليل المخبرية والاستقصاء الوبائي للمرض منذ يناير ٢٠٠١ م. و قد أضفنا هدفاً آخر للاستراتيجية وهو القضاء على مرض الحصبة الألمانية قِضاً ثانياً أيضاً. و قد لعبت عدة عوامل دوراً في انخفاض حدوث مرض الحصبة بالمملكة، منها المحافظة على معدل عالٍ للتطعيم بمرعتين من اللقاح للأطفال دون السنة من العمر (معدل تغطية أكثر من ٩٠%)، إضافة إلى معدل تطعيم عالٍ بين الأطفال في سن المدرسة (معدل تغطية أكثر من ٩٦% في كلتا الحملتين).

و قد تؤدي النشاطات التطعيمية الحالية للقضاء على مرضي الحصبة و الحصبة الألمانية بالمملكة إلى تناقص عدد المهددين بالاصابة بمُذِين المرضين، خاصة بين الأعمار المهددة بتناقلهما (أطفال المدارس). كما و إنما قد تقلل السرعة التي يدخل بها المهددون بالاصابة إلى المجتمع. و بذلك فقد يقل التعرف على مرض الحصبة كمشكلة صحة عامة من قبل الأطباء و الأهالي. و بالتالي فإن التشخيص الطبي لهذين المرضين يجب التنويه به لجميع الخريجين و المتحقيين الجدد بالخدمات الصحية بالمملكة.

ويظل وجود كثافة سكانية عالية من الوافدين الغير قانونيين بالمملكة، خاصة في مدينتي جدة و مكة المكرمة، ووفود فيروس الحصبة من البلدان المربوعة التحدي الأكبر لهدف القضاء النهائي على المرض في المملكة.

اعداد: د. يعقوب الزروع و د. صلاح تمشاح. الوكالة المساعدة للطب الوقائي، وزارة الصحة.

بمعرفة فترة حضانة الحالات وكذلك الصورة الاكلينيكية للمرض يبدو انه نزلة معوية بسبب الفيروس الدائري (Rotavirus)، و الدليل على ذلك سلبية جميع المزارع والمسحات التي أخذت من المصابين والعاملين والأدوات. و مصدر العدوى الأكثر احتمالاً هو أحد الأطفال الذي انتقلت منه العدوى أثناء تغيير حفاظته من قبل الحاضنة، و التي قامت أيضاً بتحضير الرضعات لبقية الأطفال يوم ١٤١٩/١٢/٣هـ، حيث تبين من تحليل العلاقة بين الحاضنات والأطفال الأصحاء والمرضى أن جميع الأطفال الذين ترعاهم هذه الحاضنة أصيبوا بالمرض.

اعداد: د. عبد الحفيظ تركستاني، د. مساعد السليمان، د. عشري جاد، د. ناصر الحمدان. برنامج الوبائيات الحقلية بوزارة الصحة، كلية الطب بجامعة الملك سعود.

### تأثير حملات التطعيم بلقاح MMR على مرض الحصبة في المملكة العربية السعودية

حتى ينجح تحقيق هدف القضاء على مرض الحصبة بحلول عام ٢٠٠٠، قامت المملكة العربية السعودية بحملات تطعيم مكثفة بلقاح MMR على جميع طلبة المدارس. و قد تمت الحملة الأولى خلال شهري سبتمبر و أكتوبر ١٩٩٨، و كانت موجهة إلى طلبة المدارس المتوسطة و الثانوية (ما بين ١٢ إلى ١٨ سنة). و قد تم تطعيم ١.٦٢٩.٥٦٥ طالباً في هذه الحملة بمعدل تغطية ٩٦.٤%. أما الحملة الثانية فقد تمت خلال شهري يناير و فبراير ٢٠٠٠، و كانت موجهة إلى طلبة المدارس الابتدائية و الصف الأول المتوسط، (ما بين ٦ إلى ١٣ سنة). و قد تم تطعيم ٢.٤١٢.٠٧٨ طالباً في هذه الحملة بمعدل تغطية ٩٦.٦%. في السنة التي طبقت فيها الحملة الأولى للتطعيم، تم التبليغ عن ٥٥١٩ حالة لمرض الحصبة، و قد تناقص هذا العدد إلى ٦١٧ حالة في عام ٢٠٠٠، و هذا يعتبر أقل عدد مبلغ منذ

### النزلات المعوية في دار الطفل

#### بمكة المكرمة

أبلغت مستشفى الولادة يوم الأحد ١٤١٩/١٢/٤هـ بدخول ٩ حالات أعمارهم دون الستين تعاني جميعها من إسهال وقيء متكرر، وإحداها تعاني بالإضافة من ارتفاع بدرجة الحرارة. و قد توفي طفل واحد وتم تنويم بقية الأطفال وجميعهم من القاطنين بدار الطفل. و قد تمت زيارة المستشفى والإطلاع على سجلات الأطفال ثم زيارة الدار والسؤال بالتفصيل عن العلامات به وطريقة تحضير الطعام والنظافة وزيارة أماكن إعداد الوجبات وغرف الأطفال. و قد تم أخذ عينات من المياه و قنينات الحليب وأدوات إعداد الطعام، ثم تمت مقابلة الحاضنات والخادومات وسؤالهن عن حالتهم الصحية باستخدام استبيان موحد وأخذ مسحات حلق وأظافر منهن. و تمت مراجعة سجلات صحة الأطفال ومواقع نومهم وطريقة تغذيتهم وتنظيفهم وعمل تقصي وبائي لكل طفل مصاب مع عينة ضابطة من الأطفال غير المصابين.

و كانت أعمار الحالات تتراوح بين شهرين إلى ١٤ شهراً، منهم ستة ذكور وثلاث إناث. و قد قامت المستشفى بأخذ مسحات شرجية من جميع الأطفال وفحصها لكنها وجدت سلبية. و تبين أن جميع المصابين يسكنون في شقة واحدة من الدار، كما تبين وجود حاضنة واحدة فقط لكل ١٢ ساعة في كل غرفة و إنما تقوم بإرضاع وتغذية الأطفال وتغيير حفاظاتهم وتحميمهم يوميا وانه لم تعان أي منهن من أعراض مرضيه خلال الفترة السابقة. و بالنسبة لتغذية الأطفال فوجد أن مكونات الأطعمة و مصدر المياه لم تختلف بين الأطفال المرضى و الأصحاء. و يوجد في الدار سبع خادومات، تبين أن إحداهن تشارك في خدمة نفس الشقة ومهمتها نظافة الغرف والغسيل والكنس، و قد تلاعب الأطفال وتحملمهم. و قد أخذت إجازة مرضية بتاريخ ١٤١٩/١٢/١هـ بسبب إصابتها بإسهال وقيء. أما نتائج عينات المياه والمسحات المأخوذة من الحاضنات فكانت جميعها سلبية.



## An Outbreak of Gastroenteritis ... cont

(Continued from page 14)

- Control. Evans AS & Kaslow RA (Editors). Plenum Medical Book Company, New York & London, 1997, 4th edition, pp 285-343.
2. Evans AS. Epidemiological Concepts. In: Bacterial Infection of Human Epidemiology and Control. Evans AS & Brachman PS (Editors). Plenum Medical Book Company, New York & London. 1998, 3rd edition, pp. 13-64.
  3. Wilde J, Van R, Pickering L, Eiden J, Yolken R. Detection of Rotaviruses in Day Care Environment by Reverse Transcriptase Polymerase Chain Reaction. *J Infect Dis* 1992; 166: 507-511.

## Bacillus cereus Food Poisoning ... cont

(Continued from page 16)

- Sanford JP (Eds.). Hospital Infections (3rd ed.). Boston: Little Brown and Company, 1992; pp 345-358.
2. Hughes JM, Tauxe RV. Food-borne Disease. In: Mandell GL, Douglas RG, Bennett JE (Eds.). Principles and Practice of Infectious Diseases (3<sup>rd</sup> ed.). New York: Churchill Livingstone, 1990; pp 893-904.
  3. Armstrong GL, Hollingsworth J, Morris JG. Bacterial Food-borne Disease. In: Evans AS, Brachman PS (Eds.). Bacterial Infections of Humans, Epidemiology and Control (3rd ed.). New York: Plenum Medical Book Company, 1998; pp17-19.
  4. Abdussalam M, Kaferstein FK. Food Safety in Primary Health Care. World Health Forum, 1994; 15: pp 393-397.

Printing of this issue of the **Saudi Epidemiology Bulletin**

is supported by

**Abbott Diagnostic Products**

**Riyadh, Saudi Arabia**

**Tel: 01-461-2226**

**Fax: 01-461-3339**

### Saudi Epidemiology Bulletin

(SEB) is published quarterly by the Department of Preventive Medicine and the Field Epidemiology Training Program (FETP) of the Ministry of Health.

### Department of Preventive Medicine

#### Dr. Yagoub Al-Mazroa

Assistant Deputy Minister for Preventive Medicine, and SEB Supervisor.

#### Dr. Mohammed Al-Jefri

General Director, Parasitic and Infectious Diseases Department.

#### Dr. Amin Mishkas

Director, Infectious Diseases Department.

### Field Epidemiology Training Program

#### Dr. Nasser Al-Hamdan

FETP Supervisor, SEB Editor-in-Chief.

#### Dr. Randa Nooh

Specialist Epidemiologist

#### Dr. Haya Al Eid

Specialist Epidemiologist

**Errata:** The Editor-in-Chief apologizes for the fact that the names of reporters for the article entitled "Blood-borne diseases among barbers during Hajj, 1419H (1999)", in the last issue of the SEB (Vol. 7, No. 1&2), were improperly cited. The list of the reporters should read as follows: "Reported by: Dr Ali Al-Rumikhan, Dr Hassan El-Bushra, Dr Ashry Gad and Dr Abdulhafeez Turkistani; Field Epidemiology Training Program, King Faisal Specialist Hospital and Research Centre and King Saud University".

## Mark your calendar . . .

### Inside the Kingdom

#### May 1-3, 2001: International Symposium on complementary and Alternative Medicine.

Contact: Coordinator, Symposium Organising Committee. Northern Area Armed Forces Hospital Programme. King Khaled Military City. POBox 10018, Hafar Al Batin 31991, KSA. Tel: 966 3 7871777 ext. 2818. Fax: 966 3 7871382 or 7873101.

### Outside the Kingdom

#### July 11-13, 2001: National Maternal Nutrition Intensive Course.

Contact: Margie Konopliv, Public Health Nutrition, Division of Epidemiology, University of Minnesota, 1300 S. Second St, #300, Minneapolis, MN 55454-1015, USA. Tel: (612) 626-0793, Fax: (612) 6240315,



## Selected notifiable diseases by region, Jul – Sept 2000

	Riyadh	Makkah	Jeddah	Taif	Madinah	Qassim	Eastern	Hasa	Hafr 'Al Batin	Asir	Bisha	Tabuk	Hail	Al Shamal	Jizan	Najran	Baha	Al Jouf	Goriat	Gonfoda	Total
Measles	32	5	24	9	18	11	7	16	1	8	8	9	8	3	4	3	4	17	0	1	188
Mumps	36	20	115	10	31	37	14	21	7	26	2	7	6	2	10	5	8	7	6	0	370
Rubella	3	7	5	0	0	5	2	3	1	2	0	0	0	0	4	0	0	0	5	0	37
Varicella	586	153	382	100	136	304	613	346	208	264	93	63	68	43	0	41	58	12	44	7	3521
Brucellosis	182	14	16	27	20	123	36	28	52	277	56	6	198	14	61	33	15	49	1	7	1215
Meningitis, mening.	5	5	2	0	3	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	17
Meningitis, other	47	15	16	9	20	6	3	5	3	10	0	4	2	2	12	1	0	2	0	0	157
Hepatitis A	50	49	30	2	64	29	32	12	7	86	3	45	0	4	39	86	2	17	43	1	601
Hepatitis B	207	75	197	0	63	35	159	11	3	31	5	8	6	4	5	5	51	3	0	0	868
Hepatitis C	143	58	190	0	29	34	67	6	0	6	1	4	4	0	2	3	5	0	0	1	553
Hepatitis, unspecified	18	30	31	0	8	0	0	12	0	45	3	61	9	1	52	7	0	1	0	0	278
Typhoid & paratyphoid	9	13	4	0	4	8	18	8	0	5	2	6	17	0	2	0	0	0	0	0	96
Amoebic dysentery	17	0	517	3	4	19	21	13	0	260	10	2	5	0	11	21	0	0	1	0	904
Shigellosis	27	0	14	1	3	5	15	4	5	0	1	25	0	0	0	34	0	0	0	0	134
Salmonellosis	136	6	68	0	12	12	443	31	27	11	2	19	0	0	0	42	14	0	0	0	823
Syphilis	5	0	18	0	0	0	17	7	0	0	0	0	0	0	0	1	2	0	1	0	51
VD, other	3	0	53	0	0	0	9	22	2	6	0	1	3	0	11	2	0	0	2	0	114

## Comparisons of selected notifiable diseases, Jul – Sept 1999-2000

DISEASE	Jul-Sept 2000			Jul-Sept 1999			Change %	Jan-Sept 2000			Jan-Sept 1999		
	2000	1999	%	2000	1999	%		2000	1999	%	2000	1999	%
Diphtheria	0	0	0	0	0	0		Meningitis, other	157	142	10	638	613
Pertussis	5	4	25	11	9			Hepatitis A	601	601	0	1971	2365
Tetanus, neonatal	2	3	33	5	12			Hepatitis B	868	809	8	2405	3076
Tetanus, other	5	6	-17	11	7			Hepatitis C	553	508	9	1453	1737
Poliomyelitis	0	0	0	0	0			Hepatitis, unspec.	278	214	30	813	960
Measles	188	250	-25	546	2815			Typhoid/paratyph.	96	82	17	307	390
Mumps	370	406	-6	1173	2290			Amoebic dysentery	904	938	-4	2447	3522
Rubella	37	46	-20	152	299			Shigellosis	134	117	15	256	551
Varicella	3521	3359	5	14647	23087			Salmonellosis	823	832	-1	1494	2145
Brucellosis	1215	2244	-46	4241	6250			Syphilis	51	76	-33	116	220
Meningitis, mening.	17	0	1700	307	20			VD, other	114	136	-16	288	460

## Diseases of low frequency, July – Sept. 2000

Yellow fever, plague, diphtheria, poliomyelitis, rabies, echinococcosis, puerperal sepsis: No cases

Pertussis: 5 (Riyadh 1, Makkah 1, Jeddah 1, Eastern 1, Assir 1)

Tetanus neonatal: 2 (Jeddah 1, Jizan 1)

Tetanus, other: 5 (Riyadh 2, Jeddah 2, Gonfoda 1)

Guillain-Barre syndrome: 24 (Riyadh 4, Qassim 3, Madinah 2, Makkah 2, Eastern 2, Jeddah 2, Hail 2, Jizan 2, Taif 1, Gonfoda 2, Assir 1, H.Batin 1)