

Hajj and Health

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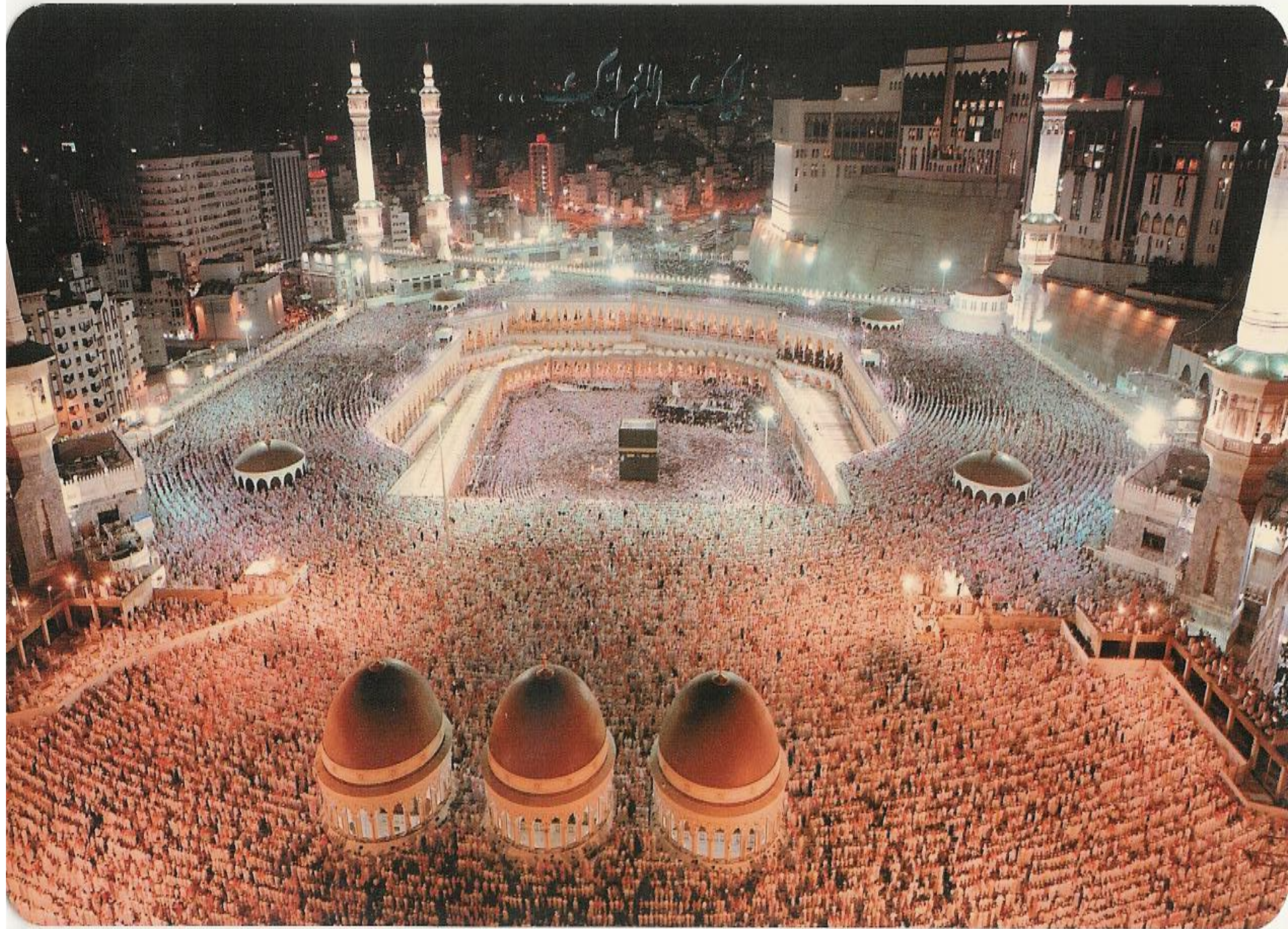
Objectives:

- Enlist the diseases and health risks related with gathering of Hajj
- Understand the signs and symptoms and prevention of these diseases
- Understand the importance of surveillance and reporting of these diseases at the national and international level
- Appreciate KSA's efforts to address and recognize the health risks and diseases during Hajj

- Khadija is a 35 year old Nigerian lady. Type 1 DM. Performed Hajj 10 years ago.
- Wants to perform Hajj this year. What does she need to do?

Hajj

An annual Islamic pilgrimage to Mecca, and a mandatory religious duty for Muslims which must be carried out at least once in lifetime by all adult Muslims.



The Hajj overview

- Annual event, for 14 centuries, and will continue forever.
- Muslim pilgrims gather in Makkah to perform their ritual fifth pillar of Islam.
- Undertaken at least once for Muslims who are physically and financially able to make the journey to Makkah.
- Performed during a five-day period from the ninth through the thirteenth of Dhu Al-Hijjah, the twelfth month of the Muslim lunar calendar.
- Pilgrims arrive before and stay after, to visit Madinah, for a period of up to 40 days.

تطور عدد الحجاج آخر عشرة أعوام

نسبة التغير %	الفرق	عدد الحجاج	
		2,258,050	2005/ هـ 1426
5	120,586	2,378,636	2006/ هـ 1427
3	75,689	2,454,325	2007/ هـ 1428
2 -	-45,476	2,408,849	2008/ هـ 1429
4 -	-95,571	2,313,278	2009/ هـ 1430
21	476,121	2,789,399	2010/ هـ 1431
5	138,318	2,927,717	2011/ هـ 1432
8	233,856	3,161,573	2012/ هـ 1433
37 -	1,181,324 -	1,980,249	2013/ هـ 1434
5	104,989	2,085,238	2014/ هـ 1435
		24,757,314	الإجمالي

Factors affecting pilgrims in the gathering of Hajj

- Population factors
- Environmental factors
- Other factors

Population factors:

- \simeq 3million Muslims coming from $>$ 140 countries, all continents
- Different backgrounds, cultures
- Different prevailing local infectious diseases
- Varying immunity.
- High proportion of elderly & chronically ill people.

Environmental factors:

- Weather, mostly dry and dusty.
- Huge crowd size, high population density, all time every where, (roads, Residence, Ritual practice)
- Extended outdoor ritual event.
- Continuous mobility with physical effort.

Other factors:

- Food related:
 - Numerous Premises, Food handlers, transport & storage.
- Waste: Huge amounts
- Human secretions & excreta
- Inappropriate / wrong behaviors
- Insects & disease vectors
- Animal slaughtering associated with Hajj
 - Waste - Injuries



Health Risks associated with Hajj

Health risks associated with Hajj

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graph TD; A[Health risks associated with Hajj] --> B[Communicable diseases]; A --> C[Non-communicable diseases]; B --> D["-Respiratory infections<br/>-Gastrointestinal infections<br/>-Meningitis<br/>-Blood-borne diseases"]; C --> E["-Heat injuries<br/>-Complications to NCD<br/>-Accidents"];
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Communicable diseases

- Respiratory infections
- Gastrointestinal infections
- Meningitis
- Blood-borne diseases

Non-communicable diseases

- Heat injuries
- Complications to NCD
- Accidents

Health risks for other populations (risks to population)

- Individuals can efficiently transmit communicable diseases to many others;
 - Other pilgrims
 - Local population
 - When return to their home population.
- Opportunity for terrorism / violence.
- Put more strain on the infrastructure.

Communicable diseases

- Diseases endemic in the host country
- Diseases endemic in the home countries
- Way in which populations mix
- International travel

Communicable diseases

- Respiratory infections
- Gastrointestinal infections
- Meningitis
- Blood-borne diseases

Respiratory Infections

- Coryza (cold), seasonal influenza and bronchitis.
- They are transmitted through the droplets of coughing, sneezing or speaking.

- Overcrowding
- Direct contact with infected patients
- Sharing of personal tools
- Decreased personal hygiene

- **Prevention and Reduction of Spread:**
- **Face-masks**
- Coughing/sneezing etiquette
- Don't touch your eyes, nose or hands with the hands until after washing them well
- Hand washing
- Vaccination against seasonal influenza

- **Treatment**

- Supportive treatment
- Rest, drinking fluids
- Antipyretics and painkillers.
- See a doctor on the onset of acute symptoms.

Tuberculosis (TB)

- Airborne transmission through the droplets of coughing, sneezing or speaking.
- Saudi Ministry of Health calls upon tuberculosis patients to put their Hajj off for later years

Gastrointestinal Infections

- **Symptoms:**
- Diarrhea, constipation, nausea and vomiting, headache, fever and abdominal pain.
- Many pilgrims are prone to **food poisoning**, especially by **salmonella**

Causes

- Consumption of uncooked food (eggs), improperly cooked meat, or improperly stored food (cream)
- Consumption of unwashed fruits or vegetables
- Consumption of unpasteurized milk
- Negligence of washing

Prevention:

- Proper hand washing
- Washing fruits and vegetables, proper cooking and storing of food
- Drinking pure water and pasteurized milk

Blood born diseases

- Hepatitis B, C and HIV.
- Head shaving
- Illegal unlicensed barbers (non-sterile blades, re-used)
- licensed barber facilities at the Hajj premises to shave their heads
- The Saudi MoH encourages all pilgrims to receive the full series of hepatitis B vaccination prior to travel to Hajj

Meningococcal Meningitis

- A bacterial disease caused by one of the most virulent human pathogens.
- *Neisseria meningitidis*
- Different serogroups the most important are: (A,B,C,W135,Y,X & Z.....).
- Reservoir: Humans (carriers)
- Transmission: droplet infection
- I.P : 2-10 days

- High priority importance
 - Can cause devastating epidemics.
 - Health system
 - Preventive med, Hajj program.
 - Highly public health concern.

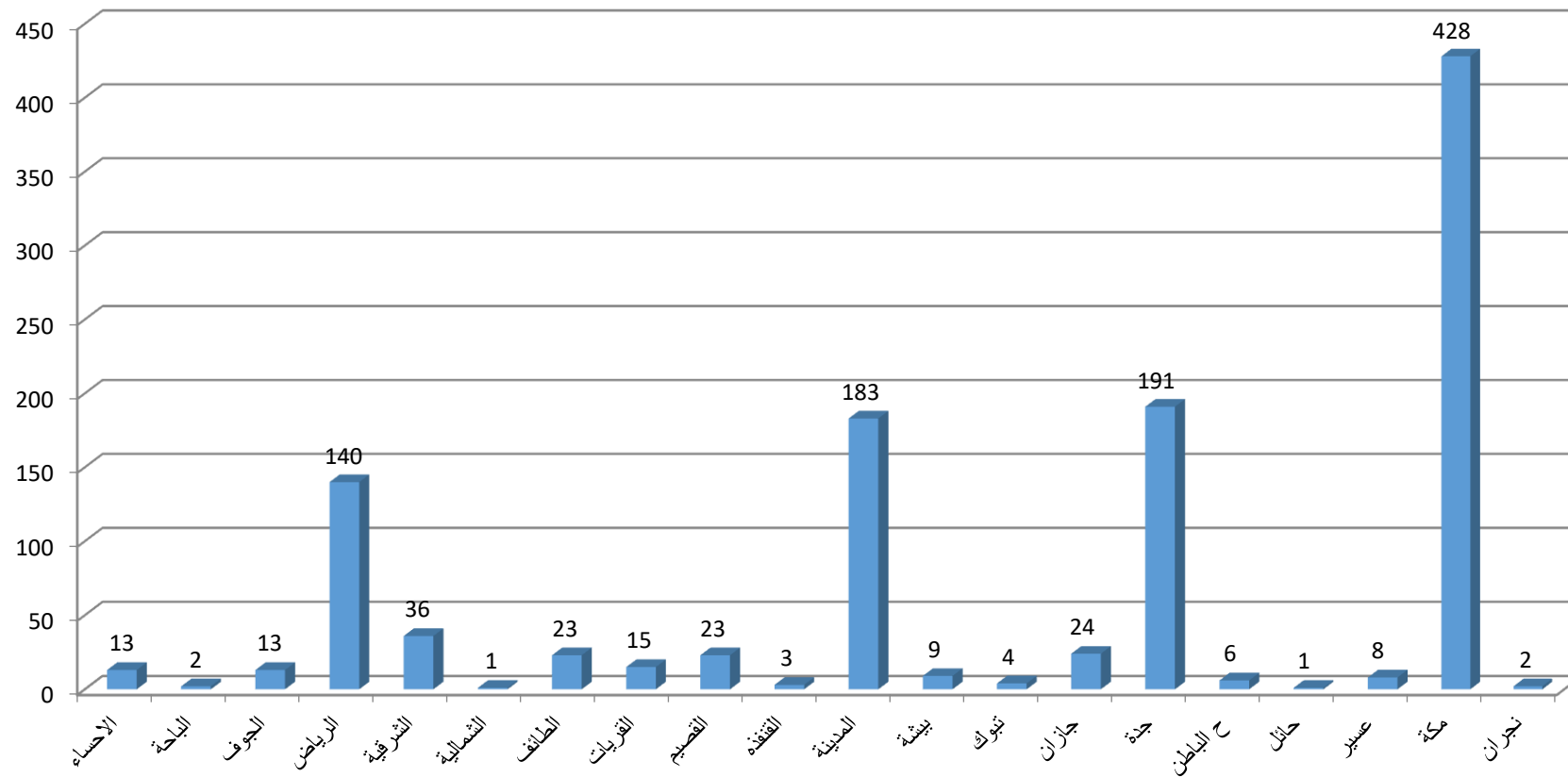
Case Definition

Adults & children >1yr	Children < 1yr
<ul style="list-style-type: none">• Sudden onset,• Fever, headache, stiff neck• consciousness deterioration.• Meningial signs; Kerning.. Brudzinski• Skin rash.. petichial	<ul style="list-style-type: none">• Fever, bulging fontanel, fits, skin rash• Vomiting, stiff neck, lethargy, feeding refusal

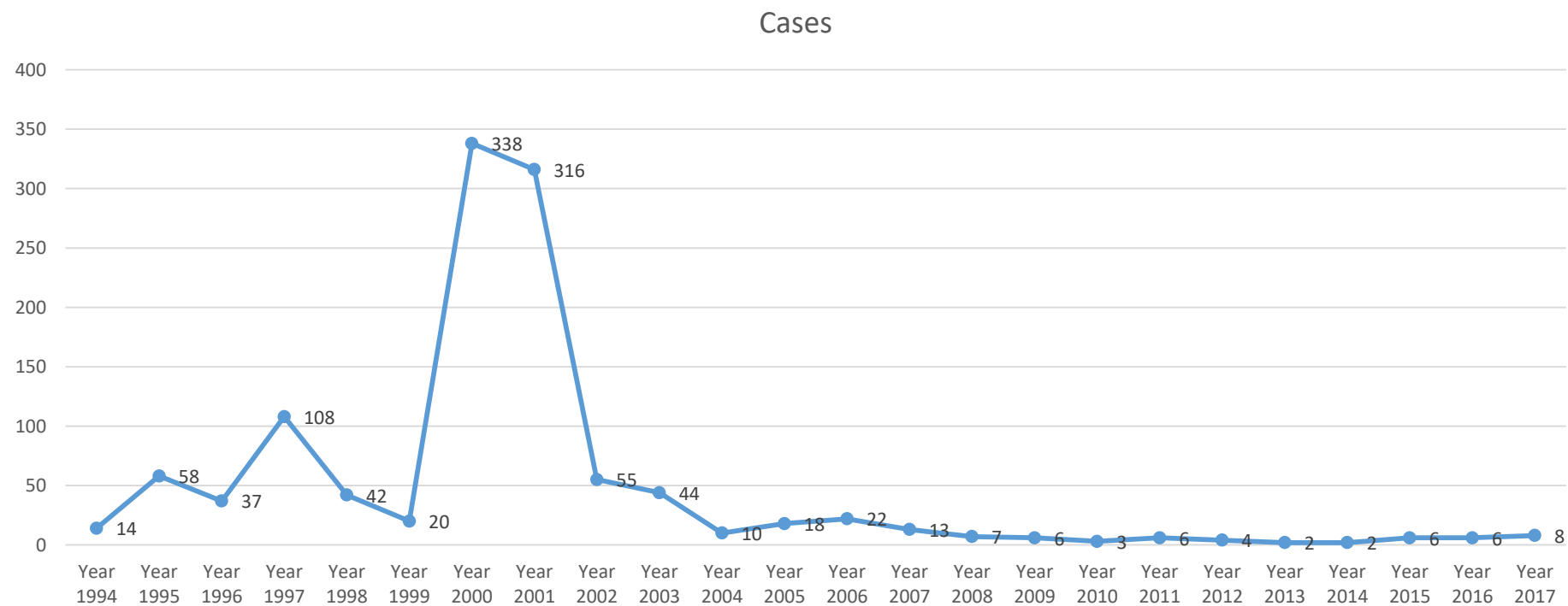
Confirmation

- Laboratory identified organism (microscopy)
- +ve CSF smear
- Culture (CSF / blood)

Meningitis cases in KSA by Health Regions 1994 -2014



Annual cases of M. Meningitis In Saudi Arabia 1994 – 2017

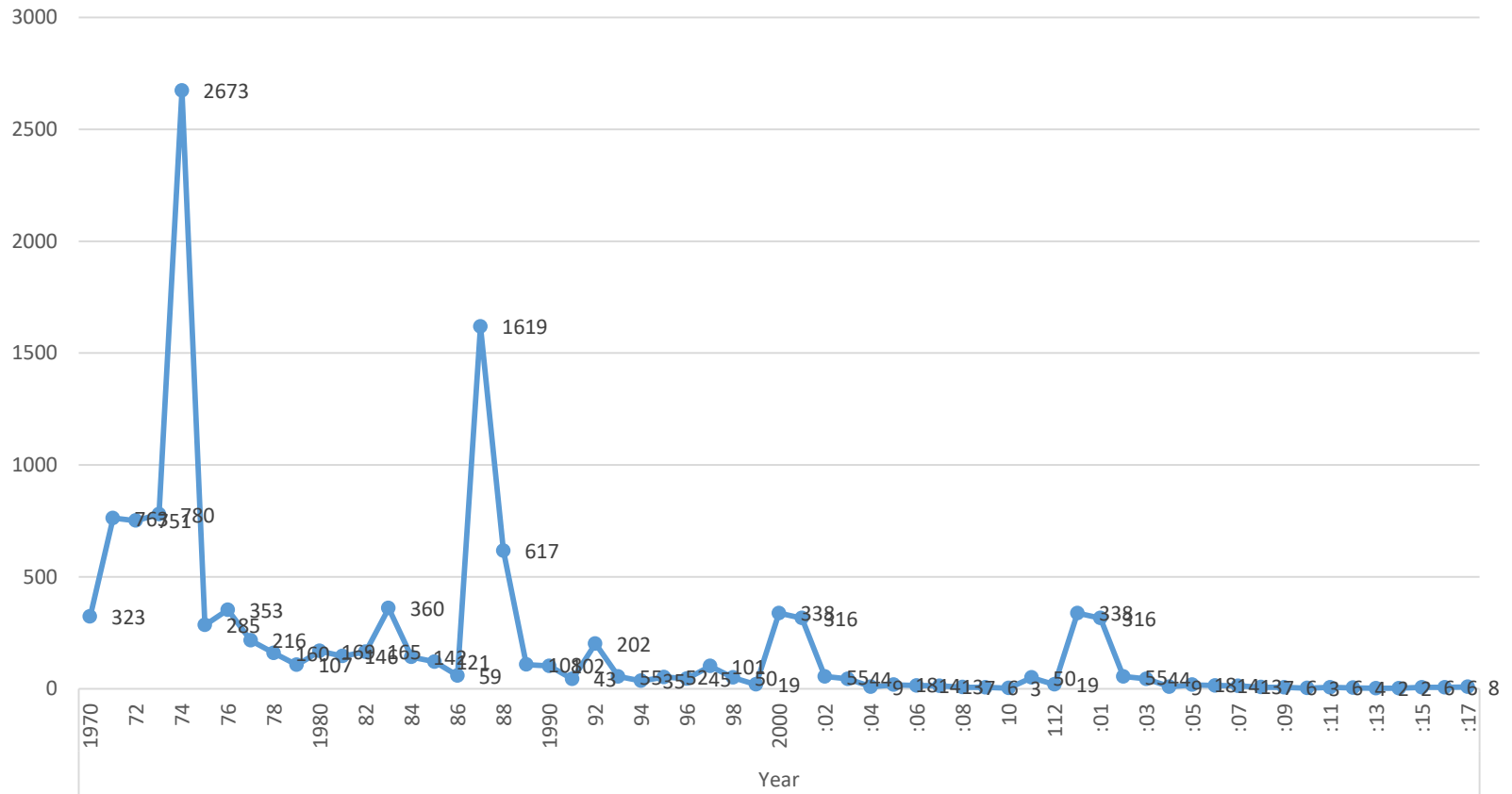


Introduction of meningococcal meningitis vaccine

- Polysaccharide type (A) vaccine was introduced in 1976.
- polysaccharide type (AC) vaccine was introduced in 1977.
- Polysaccharide type (ACYW135) was introduced in 2002.
- Conjugate meningococcal vaccine (ACYW135) was introduced in 2010



Confirm cases of Meningococcal meningitis 1970-2017



Preventive Measures: Towards Patient

1- Immediate reporting

- on suspicion /and then with culture results

2- Isolation:

- Respiratory isolation
for 24hrs after start of chemotherapy.

Preventive Measures: Towards Contacts

- **Identify contacts**; direct & indirect
- **Vaccination** (the unvaccinated)
- **Chemoprophylaxis**; For intimate contacts.
- **Close surveillance**

Vaccination

- Adults and children over the age of 2 years must be given 1 dose of the **quadrivalent** (ACYW135) vaccine;
- Certificate of vaccination issued **not more than 3 years** previously and **not less than 10 days** before arrival in Saudi Arabia

Chemoprophylaxis

Chemoprophylaxis for arriving pilgrims from the African meningitis belt

Local Hajjes & workers before departing Makkah.

External Hajjes before departure (optional)

Intimate contacts.

- Ciprofloxacin for adults (single dose 500mg PO).
- Rifampicin for children (5-10 mg/Kg bd /2 days).
- Ceftriaxone for pregnant ladies (single dose 250 mg i.m).

Non-communicable diseases

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graph TD; A[Non-communicable diseases] --> B[Heat injuries]; A --> C[Complications to NCD]; A --> D[Accidents]; B --> B1[Heat exhaustion]; B --> B2[Heat stroke]; C --> C1[Diabetes]; C --> C2[Hypertension]; C --> C3[Heart disease]; C --> C4[Kidney disease]; C --> C5[Asthma]; C --> C6[Epilepsy]; D --> D1[Fire]; D --> D2[Trauma];
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Heat injuries

Heat exhaustion
Heat stroke

Complications to NCD

Diabetes
Hypertension
Heart disease
Kidney disease
Asthma
Epilepsy

Accidents

Fire
Trauma

Heat stroke

- When core body temperature exceeds 40C with confusion and dry skin.
- Headache and dizziness, dehydration, and skin redness.
- **Extremely serious condition**, if not treated can lead to heart dysfunctions, nervous system dysfunction, renal failure and end with death.

Treatment:

- Mechanical cooling (cold compressions, cold water, cool place,.....)
- Resuscitation

Heat Exhaustion

- A **less serious** condition than sun stroke.
- Extreme fatigue in hot weather
- **Signs and symptoms:** cold and wet skin, excessive sweating, low heart beat, fast breathing, thirst, dizziness, nausea, fatigue, loss of consciousness.

Treatment:

- Mechanical cooling (cold compressions, cold water, cool place,.....)
- Resuscitation

Complications to chronic diseases

- Diabetes
- Hypertension
- Heart disease
- Kidney disease
- Epilepsy
- Asthma

Diabetes

- **Risks:** Hypo/hyperglycemia, foot ulcers
- **Precautions:**
 - Wrist bracelet or identification card.
 - Carrying glucose meter, enough amount of diabetic medications, keeping insulin in proper temperature
 - Wearing socks, avoiding walking barefoot
 - Doctor's consultation
- **Symptoms of hypoglycemia:** severe fatigue, sudden hunger, blurring, excessive sweating
- Rest, snack...

Cardiovascular diseases

- Heart diseases / hypertension
- Doctor's visit before going to hajj.
- Taking medications, and compliance.
- Avoid/ decrease mental and physical stress.

General advise for chronic disease patients

- Doctor's visit before going to hajj
- Taking enough amount of medications
- Taking special precautions depending on diseases

Accidents: Fire

- Potential risk at Hajj.
- In 1997, killed 343 pilgrims and injured more than 1,500.
- **Solutions:**
 - Permanent fiberglass structures for tents
 - Cooking in the tents is also prohibited.
 - Evacuation plans.

Accidents: Trauma

- Major cause of injury and death during Hajj.
- Motor vehicle crashes/ crowd crushes
- Crowd crushes at jamarat In 2004, killed 251 and injured 244 pilgrims and in 2006 it killed 280 pilgrims and injured 289.
- Round pillars were replaced with wide, elliptical columns
- Wider, multilevel bridge
- Personal cars are prohibited from entering holy sites
- Buses and train (almasha'eer)

- Khadija is a 35 year old Nigerian lady. Type 1 DM. Performed Hajj 10 years ago.
- Wants to perform Hajj this year. What does she need to do?

General health guidelines for pilgrims

Before hajj

- Necessary vaccinations
- Doctor's visit before
- Taking sufficient medications
- Carrying a detailed report of medical condition
- Personal tools and (enough clothes, towel, shavers, tooth paste and brush, umbrella, loose cotton cloths, moisturizing creams, etc.).

During hajj

- Hygiene and general cleanliness
- Shaving and hair cutting
- Protection against food poisoning during Hajj

Health regulations for Hajj and Umrah

- Regulations to obtain an entry visa for Hajj and Umrah
- Health education
- Food material
- Diseases surveillance

Regulations to obtain an Entry Visa for Hajj and Umrah

Hajj vaccinations:

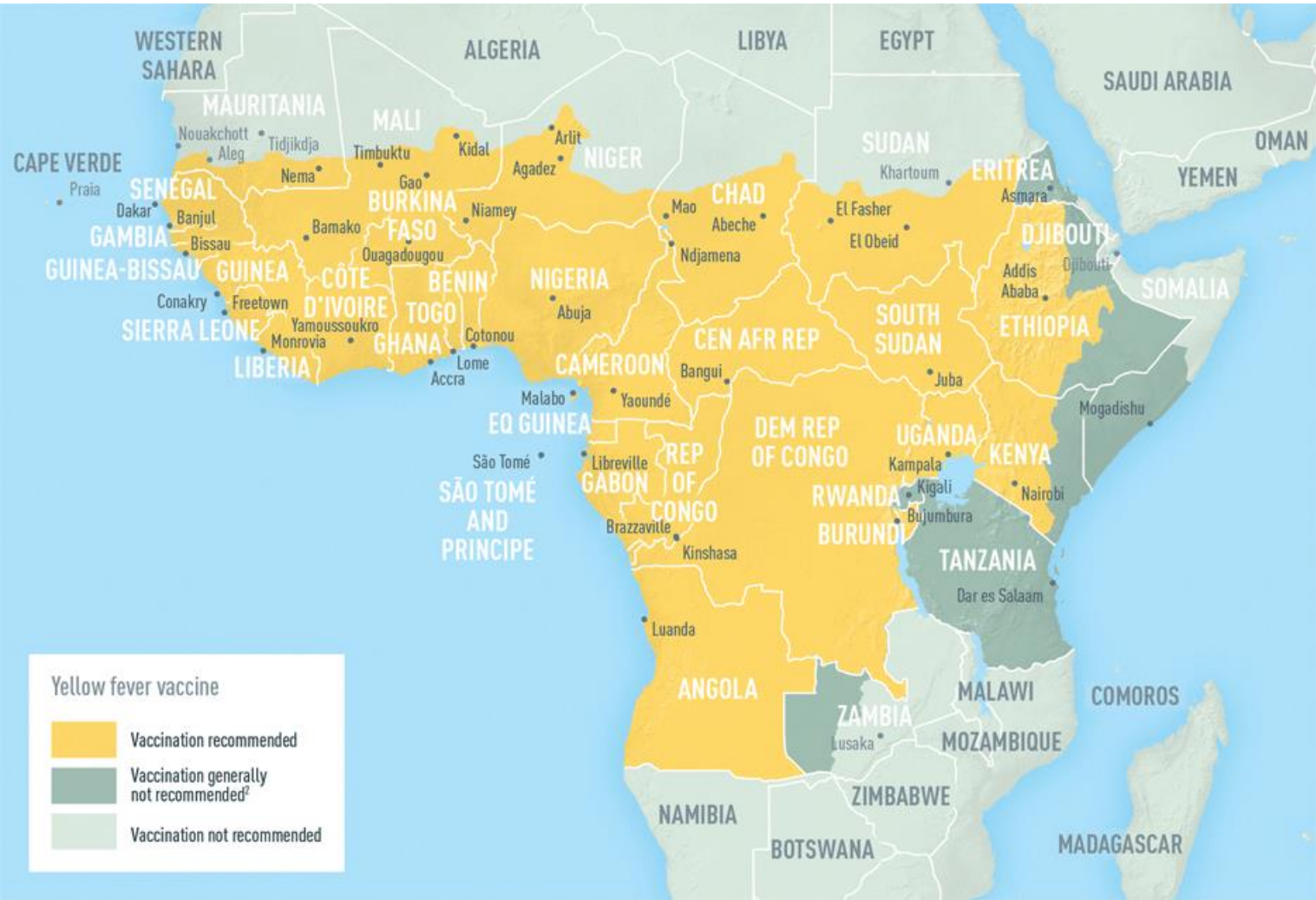
- 1- Yellow Fever
- 2- Meningococcal Meningitis
- 3- Poliomyelitis
- 4- Seasonal Influenza

Yellow fever vaccine

International health regulations (IHR 2005) obliged all travelers from countries or areas at risk of yellow fever to present valid vaccination certificate

- At least 10 days and at most 10 years before arrival at the border
- No certificate, individual will be placed under strict surveillance for 6 days from the date of vaccination or the last date of potential exposure to infection, whichever is earlier

Yellow fever vaccine recommendations



Meningococcal Meningitis

Required from:

a) Visitors from all countries:

Umrah or pilgrimage (Hajj) or for seasonal work

submit a certificate of vaccination with the quadrivalent (ACYW135) vaccine against meningitis issued no more than 3 years and no less than 10 days before arrival in Saudi Arabia.

b) Visitors from African Countries:

In addition to **vaccination**

ciprofloxacin tablets (500 mg) **chemoprophylaxis** will be administered at port of entry to lower the rate of carriers.

Meningitis belt



C) Interior pilgrims and the Hajj workers:

- All **citizens** and residents of **Madina and Makka** who were not vaccinated in the last 3 years
- All citizens and residents undertaking the **Hajj**
- All **Hajj workers** who have not been vaccinated in the past 3 years
- Any individual working at **entry points** during Hajj season

Poliomyelitis

countries reporting imported polio or **vaccine-derived poliovirus** (past 12m)

- Visitors <15 years of age
- Vaccination certificate (IPV, OPV) at least 6 weeks before visa application
- Will receive 1 dose OPV at entry to SA
- Eg: Kenya, Yemen

polio-endemic countries

- All visitors
- Vaccination certificate (OPV, IPV) 6 weeks before visa application
- Will receive 1 dose OPV at entry to SA
- Eg: Afghanistan, Nigeria

**Polio-infected countries for which WHO recommends polio immunization
of persons traveling to or from the country, as of 29 April 2015**



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization
Base Map: GEBCO
Map Production: Global Polio Eradication Initiative,
World Health Organization

Seasonal Influenza

- **Recommended for:**
- International pilgrims before arrival to KSA especially high risk people: pregnant women, children under 5 years, the elderly, and individuals with underlying health conditions such as HIV/AIDS, asthma, and chronic heart or lung diseases
- Internal pilgrims, particularly those at high risk described
- All health-care workers in the Hajj premises

Health Education

- Health authorities in countries of origin are required to provide information to pilgrims on:
 - Infectious diseases symptoms, methods of transmission, complications, and means of prevention
 - Hand washing
 - Face mask

Food Material

- Hajj and Umrah performers are not allowed to bring fresh food into Saudi Arabia.
- Only properly canned or sealed food or food stored in containers with easy access for inspection is allowed in small quantities, sufficient for one person for the duration of his or her trip

Disease surveillance

Notifiable disease (immediately reported)

- Suspected cases → early preventive measures
- Confirmed cases (confirm by telephone call)) to MOH and HESN
- Preliminary reporting includes; name, age, sex, nationality, dates of arrival, onset, isolation & positivity, Vaccination status , Serogroup.

Types of Surveillance During Hajj

- Surveillance at entry points
- Targeted infectious diseases
 - Influenza
 - Meningitis
 - Hemorrhagic Fevers
 - Cholera
 - Plague
 - Food poisoning
- Others : (according to global situation...)

The Hajj; Past and Present

- Used to be hard & risky
 - lack of facilities on the way to and at the Holy City.
 - used to do their wills before departing, many perished on their way.
- Rapid improvement with the foundation of modern Saudi Arabia by King Abdul Aziz Al Saud,
 - *(security, Safety, Health, Housing, Transport, Env. and Sanitation).*
 - It is an honor for Saudi Arabia to serve the guests of the Mercy God.
- Improvements are challenged by the growing numbers of Pilgrims.
- Facilities improvement by itself is not enough, things need to be organized and efficiently managed.



Resources

- <http://www.moh.gov.sa/en/Hajj/Pages/default.aspx>
- <http://www.cdsi.gov.sa/2012-10-29-06-31-56>