
POSITION STATEMENT

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Report of a serious reportable communicable disease at a major sporting event

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A European Youth Olympic Sports Festival (EYOF), in Jaca, Northern Aragon, Spain, involving 1 500 athletes, from 43 countries was held in January for 7 days. The event was marred by a case of type B *Neisseria meningitidis*. The usual care of the patient was performed in a local hospital. He eventually made a full recovery. The case was reported to the Local Health Authority and the National Public Health authority of the patient's country. Their advice was to treat the core case, give prophylactic therapy to the inner circle (28 athletes and officials) and surveillance of the other close contacts (84 total) with temperature and symptom review daily. They advised against further information being given to the rest of the athletes and officials, in case it might give rise to a panic situation. The dilemma of the responsible physicians was that 1 500 athletes were traveling back to 43 countries within the incubation period of the bacterial meningitis. It was decided that informing each country was appropriate. This was done at the event by informing the Chef of the Missions and writing to the Secretary Generals of each National Olympic Committee attending. This was the first serious contagious disease at a major sporting event. The way in which the wider dispersing attendees were informed at the event should form the basis of management at sporting events in the likelihood of a serious communicable disease.

KEY WORDS: Sports - *Neisseria meningitidis* - Child.

The organism was a type B *Neisseria meningitidis* for which there is no vaccine.^{1, 2} This meningococcal disease occurs in about one in 100 000 people per year.^{3, 4} In the setting here described, this

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was the first case in the region that year. The previous year there were 3 cases in a population of 230 000. Besides children, it normally affects 15-19 years-old-youths.^{5, 6} The incubation period usually ranges from 3 to 5 days (up to 10 days according to some reports).¹ Meningococcal disease occurs year-round even if most cases occur during winter and early spring.⁵ The transmission pathway is usually by person to person from droplets from the upper respiratory tract.³

Immunity develops in most patients within 14 days after exposure.¹ The risk of invasive disease varies with environment and host factors but also critically depend on the strain of the disease acquired. There is a case fatality rate of 10% mortality.^{1, 3}

Carriage is very common and is present in 2% of children under 5 years of age, 25% in 15-19 year old subjects. Carriage usually lasts for 21 months^{7, 8} but only a small proportion of carried strains are responsible for invasive disease. Carriage is increased by smoking cigarettes, overcrowded households, preceding influenza and military recruits.^{1, 3, 9}

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Meningococcal disease presents as septicemia, meningitis or both. The only vaccine is for the prevention of the type C.¹⁰ Preadmission management is with benzylpenicillin.^{11, 12} The disease is very common after contact in the first 48 hours. There is an absolute risk of 1:300 in a household contact without prophylaxis in 1-30 days.¹³⁻¹⁵

Not everyone needs prophylaxis.¹⁶⁻¹⁸ By conventional wisdom, the following groups of people and activities have been decided not to require prophylaxis:

- staff or children in the same school;
- students/pupils in same class/school/tutor group;
- work or school colleagues;
- friends;
- residents of nursing or residential homes;
- kissing on cheek or mouth, food or drink sharing;
- attending the same social function;
- traveling in the next seat on same plane, train, bus or car.

Case report

A 16 year old ice hockey player traveled to Jaca on Saturday 17.2.2007. He participated in practice with his team on Monday 19.2.2007. He felt unwell on Tuesday 20. His illness progressed and he developed a stiff neck and temperature on Wednesday 21. He was transferred to a local hospital in Jaca where meningitis was diagnosed. He was given benzylpenicillin and transferred to a regional hospital in Huesca (75 km from Jaca) in the evening. He was admitted to Intensive Care Unit (ICU), clinically diagnosed as meningitis and isolated. There he developed a temperature of 104 degrees Fahrenheit (39.6° C), a white cell count (WBC) of 25 000, 94% neutrophils. On Thursday 22 he had normal renal and liver function. No definite rash appeared. He was given intravenous Vancomycin, Cefotaxime and Corticosteroids. He was confused, and he was 11/15 on the Glasgow neurological scale. It was difficult to access on this scale due to language and cultural differences. He remained in the ICU.

The patient had a lumbar puncture and was given antibiotics intravenously. On February 23, 2007 the organism was identified as type B N meningitidis. He made a full recovery with no early sequelae of meningitis and he was transferred to his native country by air ambulance during the same week.

The inner core of 28 athletes and officials were given prophylactic Rifampicin 600 mg bd (to the youths) and Ciproxin 500 mg daily (to the adults). The potential side effects of these drugs were explained to the recipients before starting the medication. All inner circle personnel were >60 kg.

Discussion

A European Youth Olympic Sports Festival, involving 1 500 athletes, from 43 countries was held for 7 days. The event was marred by a case of Meningococcal meningitis. The usual care of the patient was performed in local and regional hospitals. He eventually made a full recovery. His inner core contacts were given prophylactic oral antibiotics. His outer core contacts were clinically monitored for 4 days.

The case was reported to the Local Health Authority and the National Public Health authority of the patient's country. Their advice was to treat the core case, give prophylaxis therapy to the inner circle (28 athletes) and surveillance of the other close contacts (84 total) with temperature and symptom review daily.¹⁶⁻¹⁹ They advised against further information being given to the rest of the athletes and officials, in case it might give rise to a panic situation.

The dilemma of the responsible physicians was that 1 500 athletes were traveling back to 43 countries within the incubation period of the bacterial infection. It was then decided to inform each country. This was done at the event by informing the Chef of the Missions and writing to the Secretary Generals of each National Olympic Committee attending.

This was the first serious contagious disease at a major sporting event. The way in which the wider dispersing attendees were informed at the event should form the basis of management at sporting events in the likelihood of a serious communicable disease.

After enquiring about handling a serious reportable communicable disease at a major sporting event, the Committee was told that this was the first time it had arisen. That is not surprising if one considers that this infectious event occurs approximately 1:100 000 per year. Therefore in an event with one athlete in one week it would be 1:5 200 000, or with 1 000 participants for one week it would be a case in every 5 200. Taking the Olympic Games as a 15 000 participants for 2 weeks it would only be expected to arise once in every 173 Olympic Games.

As in all medical matters the patient should get preference in all considerations. His/her care is paramount. After that the care of the inner circle of athletes that might have been exposed comes next. They should get the medical prophylaxis recommended by the public health authorities of the area. The outer circle athletes are the area of controversy; in normal public

health care they would not be informed. However, in a major sporting event the population at risk is not a static one. On the contrary they are returning, in this case, to 43 different countries and areas within their countries (outside single control areas). This makes them more difficult to be monitored as they are not a static population in the zone of consideration of the public health authority of the region where the event occurs.

The fear of causing unnecessary panic among the local population or the athletes highly unlikely to be infected outweighs the benefits of telling the outer core athletes. On the other hand there is a small possibility that infection might occur in these athletes when they return to their respective countries. This was seen in two mild epidemics of meningitis after the Hajj in the UK in 2000 and 2001.^{20, 21} The case here described could be considered a similar type of epidemiological problem.

The problem has been discussed in detail and has received a variety of opinions. At one extreme we should do exactly what the public health officer suggested and therefore treat the patient, give prophylaxis to the inner core of athletes possibly affected by contamination, not informing anyone else to avoid panic. At the other end of the spectrum it was said this was a unique situation. Athletes were returning to their 43 different countries within the incubation period of the core case. Should all the medical officers attending be informed? That would be a good idea but all countries did not have a medical officer. A second option was to inform the transient Chef of the Mission for this event, and let that lay person take responsibility for possible cases arising in their country on return? A third option was to inform the local public health officer and request they inform the National Public Health Officers of the 43 countries. This third option was chosen.

There is just one form of communication during an Olympic event: the Secretary General of each National Olympic Committee (NOC) is obliged to share any communication with the NOC. This gave us a unique form of continuity of communication that allows all athletes to be monitored.

It was recommended that each Secretary General should inform his medical officer of the letter received. The medical officer should then inform each athlete or their guardian of the fact that a communicable disease has occurred in the EYOF. If the child gets a fever or

any medical symptoms, that should be communicated to the NOC medical officer so that full disclosure may be shared with the local doctor.

Such management lays the foundation for the earliest and best care to be taken with any athlete who might develop this disease with 10% mortality and a higher morbidity.

Conclusions

The present study reports on a major communicable infectious disease at a sporting event. This has led to the following recommendations for handling such episodes:

Data required:

- 1) identification of the micro-organism;
- 2) data on incubation period;
- 3) definition of the communicable route;
- 4) definition of the incidence of the disease;
- 5) definition the risk of various exposures thereby getting an inner circle and outer circle of contacts;
- 6) decision on need for prophylactic therapy for core case, inner circle contacts and outer circle contacts;
- 7) decision on need for monitoring of the inner circle contacts and outer circle contacts.

Need to work closely with:

- 1) the local medical teams: from public health and patient care to ensure they are kept fully informed.
- 2) Core case: ensure correct care for your core case;
 - ensure confidentiality for the patient;
 - ensure good communication with the family and medical officer of the athlete/patient.
- 3) Contacts:
 - ensure they are given the correct treatment, surveillance and follow-up in their own countries; ensure their medical officers are informed.
- 4) Event organizers:
 - Local and International;
 - the Olympic movement has a unique communication system of: Chef de Mission. NOC Secretary General. NOC Medical Officers. This can be used to dispense information especially to the distant contacts
- 5) Follow up:
 - after 4-6 weeks to ensure final outcome is satisfactory.

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