

Guidelines for Dental Services at the Beijing 2008 Olympic Games

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Abstract: *Sports medicine is related to serious sport-related diseases and injuries¹, and dental care has been included in the medical services for the Olympic Games since 1932². For a host country organising the Olympic Games, it is very important to understand what dental care should be offered during the games³, how many dentists are needed and what kind of specialists should be available⁴. The data regarding dental care from previous Olympic Games are helpful to estimate the need for dental services in 2008³⁻⁵. The protocol for preparing for medical care at the 2012 Olympic Games has been published⁶. However, no detailed information about the guidelines for dental services at the Olympic Games was found from previous data. It is critical for the host city to have guidelines for organising and training the dental team. A guideline and protocol is important for dental diagnostics and treatment during the Olympic Games. The detailed guidelines for dental care at the 2008 Olympic Games are presented in this study. Different parts of these guidelines establish the prescripts for the following: types of dental treatments offered in the 2008 Olympic Games, participants in dental care, equipment and staff for dental care, x-ray examinations, mouthguard programme, working time and after-hours dental service, venue medical care and dental service, and data collection. The prescripts presented formed the protocol for the dental service in the 2008 Olympic Games, and it is planned to provide data to help with future events.*

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1 *The main principles of dental care in the 2008 Olympic Games:*

- 1.1 Do not over treat athletes before competition. Perform only necessary dental procedures (emergency) so as to achieve the level of competition necessary for the Games.
- 1.2 Only emergency treatments and secondary treatments to the existing emergency or after competition should be considered: the emergency treatments and secondary treatments are classified in these guidelines.
- 1.3 All examinations should give direct benefit to the patient being examined.

2 *Participants in dental care at the 2008 Olympic Games:*

The following participants can receive dental care in the polyclinic of the Olympic Village (OLV):

- 2.1 all the athletes;
- 2.2 coaches, team doctors and all staff in each national delegation;
- 2.3 dignitaries of the International Olympic Committee (IOC) and National Olympic Committee (NOC);
- 2.4 volunteers who work in the OLV.

3 *Equipment and staff:*

3.1 Equipment in the dental clinic:

- six dental units are used in six independent treatment rooms in the polyclinic;
- an x-ray room equipped with one digital panoramic and one dental x-ray machine;
- one technique laboratory with mouthguard machine and related tools;
- a storeroom for all the dental materials;
- a sterilising room with two sets of sterilising machines for dental tools;
- a local-area network (LAN) connected to a reception desk, six treatment rooms, x-ray room and the office of chief dentist to share the data;
- an inter-oral camera available on every treatment chair.

3.2 Staff

- (all from university hospitals) work in three shifts for a 15-hour work day.
 - For each shift, there are four to five general practice dentists, at least two endodontists, two dental radiological technicians, two dentists for mouthguards, and one data controller (11 to 12 dentists in each shift). The same number of dental assistants is suggested.

- There are six to eight dentists on call who are experts in different hospitals, and can join the polyclinic at any time.

- There are 28 nurses who work in four positions:

- at the front desk in three shifts (six nurses);
- three shifts in the treatment room (12 nurses);
- in the sterilising room (four nurses);
- in the storeroom (one nurse).
- There are four chief nurses in the four positions and one general chief nurse for all departments.

- Specialists:

- One orthodontic dentist is on call.
- Six oral surgeons are arranged for on-call service. The nurses in the treatment rooms make appointments for extractions from 3 pm to 5 pm every day. The oral surgeon obtains the information from the front desk one day before the operation. The chief dentist and assistant chief dentist are oral surgeons deal with emergency cases.
- Endodontists are available in every shift; six of them act as team leaders for each shift.

4 *Working time and after-hours dental care:*

4.1 Working times for the dental service in the polyclinic: 8:00 to 23:00.

4.2 After-hours dental service is on call by the receptionist of the polyclinic during the night: 23:00 to 8:00. There is one dentist in the polyclinic every night.

5 *Dental treatments offered at the 2008 Olympic Games: emergency and necessary dental treatment will be given.*

5.1 Emergency treatment

- Emergency treatment refers to the treatments to be given to the athletes when certain oral diseases lead to acutely painful symptoms. The emergency treatments should be given immediately in the polyclinic in OLV. These treatments may be related to:
 - acute infections;
 - fracture or dislocation of a tooth without bone fracture;
 - areas of soft tissue trauma.
- The following situations would also be considered as emergency treatments; the affected athletes should be sent to the local hospital to receive treatment:

- maxillofacial bone fracture;
- serious infections;
- serious trauma of facial soft tissue;
- complex trauma of cranio-maxillofacial area should be treated in cooperation with the surgeons.

5.2 Necessary treatment

- Necessary treatments are treatments related to oral disease found on examination by the dentists, chronic symptoms as displayed by the athletes, defects of the teeth suspected of leading to chronic pain, sensitivity of the teeth, and/or discomfort.
- Seventy-two hours before the athlete's competitions, only non-invasive treatment is offered.
- After competition, the necessary treatments may be offered to the athletes. When there is more than one infective process in the athlete, the following steps are suggested.
 - The first consideration is to choose the treatment that can be completed before the athlete leaves. Any treatment that cannot be completed should be avoided during the games. The dentists should suggest that the athletes begin treatment when they return home.
 - The second choice is treatment of the defects that have chronic symptoms.
- The treatment for caries, which may lead to further root canal treatment (RCT) involvement and/or crown involvement, needs to be explained to the athlete and their signature of agreement obtained.
- For a lost filling without pain:
 - temporary restoration is recommended during the competition;
 - possible permanent restoration is recommended after the competition.
- For fractures of the teeth without pain but with symptoms affecting function and/or causing discomfort, the emergency should be treated only to remove pain or discomfort.
- The necessary treatment should be provided for the athletes outside of the peak-time period.
- Seventy-two hours before the athlete is to travel by air, only non-invasive treatment is recommended.
- A hygiene service is offered when necessary for the treatment of periodontal diseases.

6 X-ray examination:

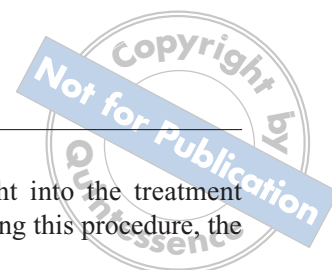
- 6.1 The goal of x-ray examination is to help the clinical diagnosis.
- 6.2 X-ray examination should be performed only on instruction from the dentist.
- 6.3 Approval of a dentist is needed even the athletes ask for an x-ray examination.
- 6.4 It is not suitable to perform x-ray examination on athletes or related persons who refuse x-ray examination or are pregnant.

7 Mouthguard programme at the 2008 Olympic Games:

- 7.1 A custom-made mouthguard is offered to all the athletes who need a mouthguard.
- 7.2 There is one technique laboratory in the polyclinic of the OLV.
- 7.3 Mouthguards are made by a team of dentists that includes three specialists in temporomandibular disorders, two prosthetic dentists and one orthodontist.
- 7.4 Two sets of impressions are taken from both the maxilla and mandible of the athletes.
- 7.5 All mouthguards are applied on the maxilla.
- 7.6 Types of mouthguards are made according to the manufacturer's guidelines. Five types of mouthguard (light, medium, pro-medium, heavy and pro-heavy) are made according to the athlete's event.
- 7.7 Customised types of sport-thickness, layers, occlusion, and functional position are included in the equipment.
- 7.8 The mouthguard programme was active from 11 days before the opening ceremony of the 2008 Olympic Games to one day before the closing ceremony.
- 7.9 Forty-eight hours are needed for making the mouthguard.
- 7.10 Adjustment of occlusion is made by appointment.
- 7.11 An investigation form should be filled out during the programme procedure, including the reason for the need for or change to a mouthguard. If it is the first time an athlete has used a mouthguard, the reasons are also asked. The athlete's events are recorded.

8 Venue medical care and dental service:

Venue medical care of the 2008 Olympic Games is not included in these guidelines. According to the training programme of venue medical care, every venue doctor has been trained on how to contact the



dental service in the local hospitals near the venue, because the polyclinic is too far away. Trauma will be treated by surgeons in the venue. The medical doctors in the four venues receive special training to work with dentists on call for the following sports:

8.1 basketball;

8.2 field hockey;

8.3 karate;

8.4 boxing.

8.5 The duties of the venue dentist, if the dentist arrives at the venue on call, include:

- cooperate with the emergency treatment of team doctors and venue medical doctors;
- finish the simple treatment for oral injuries of the athlete when the trauma is not serious;
- decide whether to transfer the athletes to the polyclinic or to the local hospital.

9 Data collection:

9.1 Registration of participants.

- All the athletes were registered as 'athletes' with their events.
- Coaches, team doctors and all other staff in each national delegation were recorded as 'others'.
- Dignitaries of the IOC and NOC were recorded as 'VIP'.
- Volunteers who work in the OLV were recorded as 'volunteer'.

9.2 Documents. There are three types of document for each participant:

- Reception card (RCd), including ID number of the participants in OLV, age, sex, sport events, nationality and registration time for dental treatment.
- Patient's file (PF): part one is a brief description (brief PF), in English, of the findings of the examination, related treatment plan and suggestions. Part two is the treatment (PF-t), in Chinese, with detailed information of the treatment procedure.
- Medical encounter form (Med-E) made by the IOC, which includes diagnosis and the name of treatments.

9.3 Transfer of the documents.

- Every participant is registered at the dental reception desk first.
- The receptionist will create an RCd for the patient.
- At the same time, the PF will be created. The RCd is attached to the PF.
- The PF is kept at the front desk during the patient's visit.

- The patient is brought into the treatment room by a nurse. During this procedure, the nurse holds the PF.
- After the dental examination or treatment, the dentist fills out the PF in handwriting and finishes the Med-E in the computer.
- The PF is taken back to reception by the nurse after the patient's treatment.
- The copy of the brief PF and PF-t is kept in the reception and then transferred to the office of the chief dentist.
- The Med-E and radiographic images are sent to the IOC office through the LAN.
- All the imaging documents (radiograph and inter-oral photos) are also transferred to the front desk and the office of the chief dentist through the LAN.

10 The athletes will take home a folder with:

10.1 a copy of the brief PF including the findings of the examination, main diagnosis and treatment for the chief complaint of the oral problem in the polyclinic, and suggestions for further examinations or treatment;

10.2 a panoramic radiograph, if taken;

10.3 an oral health education handbook;

10.4 a gift from the sponsor, including a tooth brush and a bottle of mouthwash.

Discussion

The first draft of the guidelines for dental care for the 2008 Olympic Games was discussed as early as March 2007, which guided the organisation of a dental team for the 2008 Olympic Games 500 days before the opening ceremony. During the period from March to December 2007, the chief dentist of the 2008 Olympic Games held many discussion meetings with different specialists in 12 university hospitals in Beijing to develop the guidelines. The final outline of the guidelines for the 2008 Olympic Games was reported at the site meeting between the IOC and Beijing Organization Committee of Olympic Games (BOCOG) on January 17th, 2008, and was agreed by the IOC and BOCOG. Following agreement, numerous training procedures, in accordance with these guidelines, were given to the assigned dentists and nurses of the 2008 Olympic Games. Some of the training programmes were reported to the IOC and BOCOG to help other parts of medical care in the polyclinic with their organisation and training. The final guidelines for dental care at the 2008 Olympic Games was printed in March, 2008. It took 2 years to finish these guidelines.

In May 2008, a meeting for dental care of the Olympic Games was held in Halifax, Canada. The participants of this meeting were Dr Paul Piccininni (dentist, Member of IOC), Dr Tony Clough (dentist, Supervisor of Dental Care of the 2012 Olympic Games), Dr Mark Pharhar (Chief Dentist of the 2010 Winter Olympic Games), Dr Jean-Luc Dion (sport dentist) and Dr Xiaojang Yang (Chief Dentist of the 2008 Olympic Games). Although many new suggestions were presented at this meeting, the participants realised that the guidelines could not be changed at this time for the 2008 Olympic Games because time was limited. However, some improvements were made to the guidelines for dental care at the 2008 Olympic Games, especially to Part 5 (to identify the terms for necessary and urgent treatment). It was also found that there were many disagreements among the participants regarding the steps of these guidelines. These differences were not unusual, owing to the various different locations of the host city.

There were 80 dentists enrolled for the 2008 Olympic Games. For security reasons, it is very difficult to get a passport for the OLV in a short time for a non-registered dentist during the games period. Therefore, 12 senior dentists were registered as an experts' team for on-call service for emergency cases. The number of on-call doctors depends on the location of OLV and the traffic

situation in host city. If the journey to the OLV is slow, more on-call dentists should be selected. Fifteen dentists acted as the second team, in case the dentists in the first team could not work normally. In 2008, the second team of dentists also worked in the OLV. The fewer hours the dentists of the first team can work during the period of Olympic Games, the more dentists should be pre-arranged for second team. If this is unnecessary, the number of these two teams of dentists can be reduced.

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