

### Validation of the Maurer's Formula to Type and Size the Rescue Resources and Healthcare Needs for Mass Gatherings: The Case of Three Consecutive, Major Air Shows in Western Switzerland

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Three major air shows took place in western Switzerland between 2004 and 2005. Judging by the number of attendees, the site, accessibility and type of gathering, the very important persons' participation, and the police risk analysis, a model of risk evaluation for mass gatherings proposed by K. Maurer was used to determine the type and size of rescue resources and healthcare needs.

The air shows were comprised of: (1) the Swiss Air 04, a three-day, military meeting with 270,000 attendees, 514 medical contacts, and 11 medical evacuations; (2) the Yv'Air 05, a two-day, civilian meeting with 27,000 attendees, 75 medical contacts, and two medical evacuations; and (3) the Centenary meeting of the IAF, a three-day, civilian meeting with 65,000 attendees, 59 medical contacts, and four medical evacuations.

Preparedness for each of these three air shows was planned 4–6 months before their occurrence and called for all partners (police, firefighters, medical and public health services, army, and organizers) to meet the requests of Maurer's model.

According to international statistics for mass gatherings, these three air shows reflected the total number of patient contacts of 1.79/1,000 attendees (range: 0.91–2.78; worldwide average: 0.9–2.6), the total number of medical evacuations of 0.047/1,000 attendees (range: 0.041–0.074; worldwide average: 0.07; range: 0.01–0.55) and no cardiac arrests (worldwide average: 0.25–1/500,000 attendees). No major accidents occurred.

In conclusion, the use of Maurer's model to decide what size and type of rescue resources and healthcare needs were necessary to face these air shows was adequate. The number of medical encounters and evacuations were in accordance with those reported worldwide.

**Keywords:** air show; evacuation; mass gathering; preparedness; Switzerland

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### Session 2

*Chairs: Paul Arbon; M. Sabbe*

### Three Hundred Heat Casualties during a Walking Trip

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During the Annual International Four Days Marches Event, 45,000 participants walk for four days. Each day they walk thirty, forty, or fifty kilometers (km). Traditionally the marches take place during the third week of July. Many of the participants are well over fifty. In 2006, the marches

were terminated after one day because >300 participants were not feeling well due to the extreme heat. A total of 50 participants were transported to the hospital, and two participants died.

In the presentation the following questions will be discussed:

1. Was there sufficient preparation and awareness for and during the event?
2. Was the weather adequate?
3. What were the consequences for the hospitals involved, and did the "Zirop" work?
4. The decision-making process: why a complete cancellation?
5. How did the participants feel about the incident and what were the results of the evaluation?
6. How should the responsibility be shared: should the government, the organization, or the participants take the appropriate precautions and are adequately prepared?

Finally, an explanation will be provided regarding the lessons learned and how the 2006 experiences will be incorporated into the preparations for 2007. This not only includes the International Four Days Marches Event but also the way in which preparations are made for other events.

**Keywords:** heat injuries; mass-casualty incident; preparedness; responsibility; weather

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### Prehospital Management of Mass Gatherings in Rome: A Review from the Funeral of Pope John Paul II to the Celebration of the World Football Cup 2006

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**Introduction:** The City of Rome and Vatican State frequently require implementation of the local Emergency Medical Services plan (ARES 118) for events that present a high risk due to high numbers of people attending.

**Objective:** To evaluate a prehospital emergency plan during mass-gathering events.

**Methods:** A specific protocol for health protection was planned for Pope John Paul II funeral (attendance 3,000,000) and other relevant events such as "The White Night" (attendance 1,000,000) and FIFA Football Cup 2006 Celebration (attendance 1,500,000). The activities planned included: preparedness according to other emergencies organizations including the Fire Brigade; command and control; logistic support including the provision of adequate supplies of water, food, and distribution of blankets; setting CCS (Casualties Clearing Station) for patients triaged as levels T1-T2; emergencies special vehicles (motor bike, van, etc.) that were used to implement health facilities on the scene; rescue teams trained to operate in specific sites like ancient Roman ruins or the subway.

**Results:** The results of the application of the protocols for 5,509 casualties includes: (1) an Early Care Response on the scene (89%); (2) pre-hospital, first treatment of patients on the scene (71%); (3) Inappropriate hospital admission (2.3 %); (4) a contamination of health care services for citizen living in the restricted areas (no significant difference in response times).