Enhanced surveillance improved timeliness and sensitivity at the FIFA 2006 World Cup in Germany

Williams CJ[1,2], Altmann D[1], Schenkel K[1]
1 *Department of Infectious Disease Epidemiology, Robert Koch Institute*, Berlin, Germany
2 European Programm on Intervention Epidemiology Training (EPIET)

Objective
In this abstract, we describe the major findings of an evaluation of our enhanced infectious disease surveillance activities during the FIFA Soccer World Cup 2006 in Germany.

Background
Security threats and the recent emergence of avian influenza in Europe have heightened the profile of and need for a good surveillance strategy during such events. The two main rationales for enhanced infectious disease surveillance at mass events include a perceived increased risk of infectious disease events and a need to detect and respond to events more quickly. Moreover, the requirements of the International Health Regulations (IHR) issued by the World Health Organization (WHO), which take effect in mid-2007, define the need for timely reporting of infectious diseases during international mass events [1]. Therefore, an enhanced surveillance, based on Germany's pre-existing system of mandatory notifications was conducted in the12 World Cup cities.

Methods
Enhanced surveillance activities included daily free-text reports from local health departments; daily (replacing weekly) transmission of routine (mandatory) notifications; and flagging of World Cup-relevant events in routine and local reports. For evaluating enhanced surveillance activities, we applied CDC evaluation criteria. An event was defined as the first report of one or more linked cases in the routine or free text reporting systems. Using inclusion in either source as the "gold standard", we estimated the sensitivity of the free-text reports and the electronically transmitted mandatory notifications to World Cup-relevant events (World Cup-flagged or foreign visitor-related). We calculated the sensitivity for case-reporting in free-text reports versus electronically transmitted mandatory notifications. We compared median reporting delay (onset to receipt at the national centre) for notifications in host cities, weeks 23-29 of 2006, with the same period in 2005. Also, we compared electronically transmitted cases during the WM-period and in the preceeding year by using the perecentage of cases fulfilling the most specific criteria of the reference case definition as a proxy for data quality.

Results
During the World Cup, health departments in host cities reported 4,112 cases to the routine mandatory notification system, and 155 events (523 cases) in free-text reports. The sensitivity for World Cup-relevant events was 44% (8/18) in the routine mandatory notifications and 78% (14/18) in free-text reports. The threshold for case-reporting in free-text reports was lower than for routine mandatory notifications and the ratio of disease-specific, case-based free-text reports to mandatory notifications ranged from 2/1207 for Campylobacter to 134/48 for measles. The median reporting delay within the electronically transmitted routine mandatory notifications fell from 17 to 12 days. Data quality during the World Cup period was only slightly poorer than before the World Cup period (see table 1).

Table1: data quality during the World Cup period compared to preceeding weeks and same period preceeding year, using cases fulfilling reference definition as a proxy for data quality.

Time period	*Cases fulfilling reference definition*	*All cases*	*% fitting reference definition*	*WM period significantly different? (Chi-squared p value)*
2006 weeks 23-29 (World Cup period)	***3127***	***4112***	***76.0%***	***No***
2006 weeks 1-22	***19748***	***23069***	***85.6%***	***Yes (p=0.000)***
2005 weeks 23-29	***4106***	***5083***	***80.8%***	***Yes (p=0.000)***

Conclusions
Free-text reports were a useful addition to routine notifications, increasing the sensitivity for relevant events and highlighting cases of serious infections. The threshold for free-text reporting was fairly lower than for routine mandatory notifications and seemed to depend on the percieved importance of pathogens/diseases. Moreover, the reduced reporting delay within the electronically transmitted mandatory notifications improved timeliness. Additional daily free-text reporting should be considered as a useful supplementary surveillance tool in similar settings.

References
[1] WHO.Revision of the International Health Regulations. 2005. Report No. A58/4, 16 May 2005. [Cited 2005 Nov 29]. Available from www.who.int/gb/ebwha/pdf_files/WHA58/A58_4-en.pdf