Seasonal influenza species in people analysed for the presence of the pandemic (H1N1) 2009 influenza virus.

The pandemic (H1N1) 2009 influenza virus emerged in Mexico and the United States at the end of March 2009 (4, 6) and caused the first influenza pandemic since 1968. Even though the course of the diseases is mild in general, risk groups (like pregnant women, small children and patients with further underlying diseases) are in danger of severe complications (3). Specific nucleic acid tests were set up shortly after the genome sequence was published (8). Diagnostic tests have been used in national surveillance programs to limit virus transmission and to provide adequate therapy regimens for risk groups with respiratory symptoms. In April, we mainly tested patients arriving from Mexico or the United States. During the onset of viral transmission in Europe one local outbreak at a school in Cologne (June) and frequent infections in people spending their holiday in Spain (July) resulted in more than 30 influenza tests per day at our Institute. The majority of people were tested due to potential exposure to pandemic (H1N1) 2009 influenza viruses rather than severe illness. The index of acute respiratory infections in Germany remained low during the whole observation period, after elevated indices due to seasonal influenza had returned to normal in week 11 of 2009 (1).

Nasopharyngeal swab specimens from patients were collected in hospitals and out-patients centers in and around Cologne, Germany and were eluted in PBS at the Institute of Virology. RNA extraction was done using either MagnaPure compact from Roche (200µl volume for RNA extraction, eluted in 50µl) or Versant kPCR Sample Prep System from Siemens (500µl volume for RNA/DNA extraction, eluted in 100µl). Seasonal influenza was detected with the Qiagen influenza kit for light cycler and the new pandemic influenza according to TaqMan real time PCR protocols.
communicated by the national German influenza reference laboratory at the Robert-Koch Institute in Berlin (5).

Overall 949 individuals were tested for influenza infections from March, 27th to August, 2nd. The pandemic (H1N1) 2009 virus was found in samples from 75 people (7.9%), who were in median 19 years old (range: 2-82). The highest detection rates in weeks 23/24 and 29-31 correlated with a local outbreak at a school and the start of summer holidays, respectively (Fig.1). Interestingly, 12 (1.3%) individuals were tested positive for human Influenza A/B but were negative in the specific pandemic (H1N1) 2009 virus PCR (Fig. 1). These patients were in median 40 years old (2-57) and were sporadically detected throughout the observation period. Two of these patients were diagnosed shortly after arriving from a journey to the Southern hemisphere. At least 9 of these 12 individuals infected with seasonal influenza presented with typical flu-like symptoms (fever, cough). Of note, 109 patients were also screened for a panel of respiratory viruses (2) and four tested positive for rhinoviruses (n=4), one for parainfluenzavirus (n=1) and one for respiratory-syncytial-virus (n=1).

Viral diagnostic of respiratory infections attracts more and more attention either to provide specific antiviral treatment (influenza) or to exclude bacterial infections in order spare antibiotic therapies (2). The analysis of a large number of people for influenza infections because of the pandemic (H1N1) 2009 influenza virus repeatedly revealed the presence of seasonal influenza viruses beyond the influenza season in Germany. These results are in line with previous findings reporting limited influenza epidemics during the summer (7, 9). Therefore despite overwhelming interest for the pandemic (H1N1) 2009 influenza virus seasonal influenza should not be neglected in the diagnosis of patients with flu-like symptoms.


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