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Continued decline of anti-HEV IgG prevalence in southern Germany, 2003-2015

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Background: Hepatitis E Virus (HEV) is discussed as an emerging pathogen in industrialized countries. Officially notified hepatitis E cases have increased rapidly during the past years in Germany. However, in a recent study we reported an overall decline of anti-HEV IgG prevalence in adults from southern Germany (50.7% in 1996 vs. 34.3% in 2011). The most distinct difference was found in young adults aged 20–39 years. Data from other European countries are in line with our finding, but it has been proposed that HEV might have returned in some areas in the very recent past. The objective of this study was to investigate if there is such an increasing trend in anti-HEV IgG prevalence during the last years in southern Germany.

Material/methods: A total of 3,000 samples were tested for anti-HEV IgG using a commercially available ELISA (Wantai, China). The ELISA was calibrated to the World Health Organization (WHO) reference reagent for hepatitis E virus antibody (NIBSC code: 95/584), allowing quantification in WHO Units per ml (WU/ml). Samples were randomly chosen from routine operations of our diagnostic laboratory and comprised five sets of 600 sera taken in 2003, 2006, 2009, 2012 and 2015, respectively. Each set consisted of two age groups (20-29 and 30-39 years) with balanced female to male ratio.

Results: A steady decrease of anti-HEV IgG prevalence was found over the whole observation period. The prevalence declined from 32.8% in 2003 to 22.5% in 2006 ($p < 0.001$) and stayed at that level in 2009 (22.3%). A further decrease to 17.7% and 17.8% was found in 2012 and 2015, respectively. Overall, significantly more anti-HEV IgG positives were found in the male group (24.5% vs. 20.8%, $p = 0.018$) and in the 30–39 year age group (27.7% vs. 17.6%, $p < 0.001$). Anti-HEV IgG concentrations of positive tested sera ranged from 0.22 to 1783 WU/ml (median 2.10 WU/ml). No significant

difference in anti-HEV IgG concentrations was observed across year and gender groups, but between the two age groups (2.41 vs. 1.89 WU/ml, $p < 0.001$).

Conclusions: Our study demonstrates that there is no increasing trend in anti-HEV IgG prevalence in southern Germany. However, during the last years the seroprevalence has remained constant at around 18%. Therefore, we attribute the emerging aspect of hepatitis E to the better awareness of the disease and an increased frequency of diagnostic testing. However, since the HEV infection pressure may vary geographically, we cannot exclude an increasing seroprevalence in other regions.