

Rapid communications

MARKED DECREASE IN REPORTING INCIDENCE OF SALMONELLOSIS DRIVEN BY LOWER RATES OF SALMONELLA ENTERITIDIS INFECTIONS IN GERMANY IN 2008 – A CONTINUING TREND

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In Germany, since the enactment of the Protection Against Infection Act (IfSG) in 2001, notification of cases of salmonellosis is based on a stable case definition [1], facilitating comparability of data. The annual incidence of notified cases of salmonellosis has declined from over 90 per 100,000 population in 2001 to 60-70 per 100,000 in 2004 through 2007. After very little change from 2005 through 2007, a marked decrease of the number of notified cases (22.6% compared to 2007) was observed in 2008. This drop, as well as the overall decline since 2001 was almost entirely due to the dwindling number of notifications of infections with *Salmonella enterica* subsp. *enterica* of serotype Enteritidis (SE) (Figure 1).

After a small upsurge in 2007 when large institutional SE outbreaks occurred in Germany, especially in the second and third quarter of the year [2-4], the 34% drop in the annual incidence of notified SE cases from 2007 to 2008 was rather unexpected.

The secular decrease since 2001 in notified SE incidence of 51% affects all age groups (Figure 2) and is most pronounced in adults 20-39 years old (61%) and least pronounced in the elderly

(≥60y) (33%). It is consistent throughout Germany and in all months of the year, with the largest decreases observed in the fourth quarter (data not shown). The number of cases reported in SE outbreaks has declined along with the overall number of cases (52% since 2001), and thus the proportion of outbreak cases remained stable (13 -17% annually).

SE infection is frequently associated with consumption of eggs in which SE is the most commonly found serotype [5,6]. In SE outbreak investigations, foods containing eggs [7,8] are often identified as the source of infection.

From 2001 to 2005 (later data not yet available) egg consumption in Germany fell by 7.4% [9]. This decline by itself appears insufficient to explain the magnitude of SE decline in humans. However, this coupled with a reduction in risk behaviour (e.g., less frequent consumption of food containing raw or undercooked eggs) or a decrease in SE prevalence in eggs could help explaining the remarkable decrease in the number of human SE infections. Whereas data series on German consumer behaviour regarding eggs are not available, some data of routine monitoring of table

FIGURE 1

Incidence of notified cases of Salmonella infection by serotype, Germany, 2001-2008 (data as of 23 January, 2009)

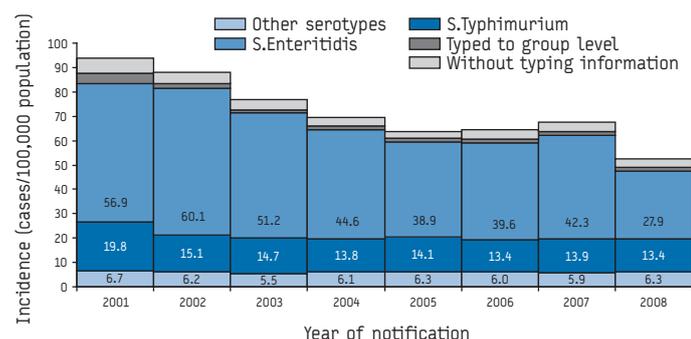
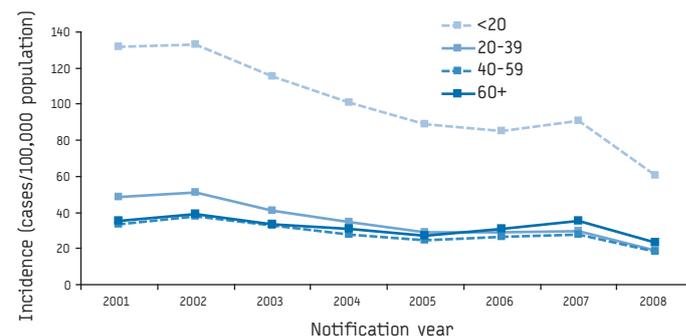


FIGURE 2

Incidence of notified cases of Salmonella Enteritidis, by age group, Germany, 2001-2008



eggs are. Though the overall prevalence of Salmonella in table eggs shows no downward trend, the decline in human incidence of SE infections in Germany since 2001 does coincide with a reduction of SE prevalence in routine table egg shell samples analysed by food safety authorities in some federal states of Germany (5, 6). Trend analyses indicate that the reduction in SE prevalence in egg shells, falling in these regions from 0.49% in 2001 to 0.19% in 2007 (2008 data not yet available), is statistically significant (e.g. p-value=0.01 in Poisson regression).

A role of reduced consumption of eggs combined with a lower SE prevalence in those eggs would be biologically plausible. However more detailed analyses, including, for example, other food products and phage type information (which is not reportable), need to be conducted to elucidate the mechanisms underlying the reduction in human SE incidence in Germany.

The reported incidence of salmonellosis has been decreasing in many countries of the European Union over the last years [10]. The authors would be interested to know, if this decline in other countries is also driven by falling numbers of SE infections in humans.

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