



Public Health  
England

Protecting and improving the nation's health

# **Travel-associated non typhoidal *Salmonella* infection in England, Wales and Northern Ireland: 2014**

## About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health, and are a distinct delivery organisation with operational autonomy to advise and support government, local authorities and the NHS in a professionally independent manner.

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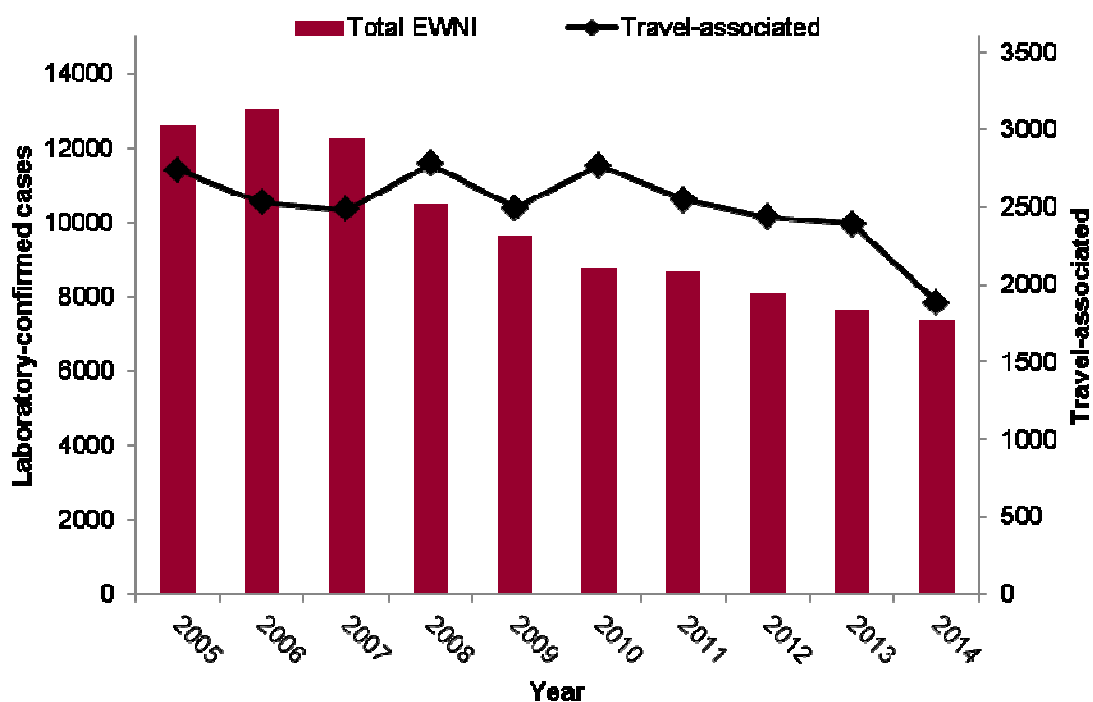
## General trend

In 2014, there were 7,363 cases of *Salmonella* infection reported in England, Wales and Northern Ireland (EWNI), a 4% decrease compared to 2013 [Table 1]. *Salmonella* infections have generally been decreasing in EWNI since the late 1990s [1], including those associated with foreign travel. Since the mid-2000s, the number of cases associated with foreign travel has decreased by 3.6% on average each year [Table 1].

**Table 1. Laboratory-confirmed cases of *Salmonella* spp, England, Wales and Northern Ireland: 2005 to 2014.**

Year	England and Wales	Northern Ireland	Total for EWNI	Of which travel-associated (%)
2005	12,404	180	12,584	2,737 (22%)
2006	12,849	206	13,055	2,527 (19%)
2007	12,094	159	12,253	2,481 (20%)
2008	10,321	187	10,508	2,780 (26%)
2009	9,482	158	9,640	2,493 (26%)
2010	8,573	180	8,753	2,769 (32%)
2011	8,492	168	8,660	2,549 (29%)
2012	7,919	146	8,065	2,434 (30%)
2013	7,493	157	7,650	2,391 (31%)
2014	7,250	113	7,363	1,882 (26%)

**Figure 1. Laboratory-confirmed cases of *Salmonella* spp, England, Wales and Northern Ireland: 2005 to 2014.**

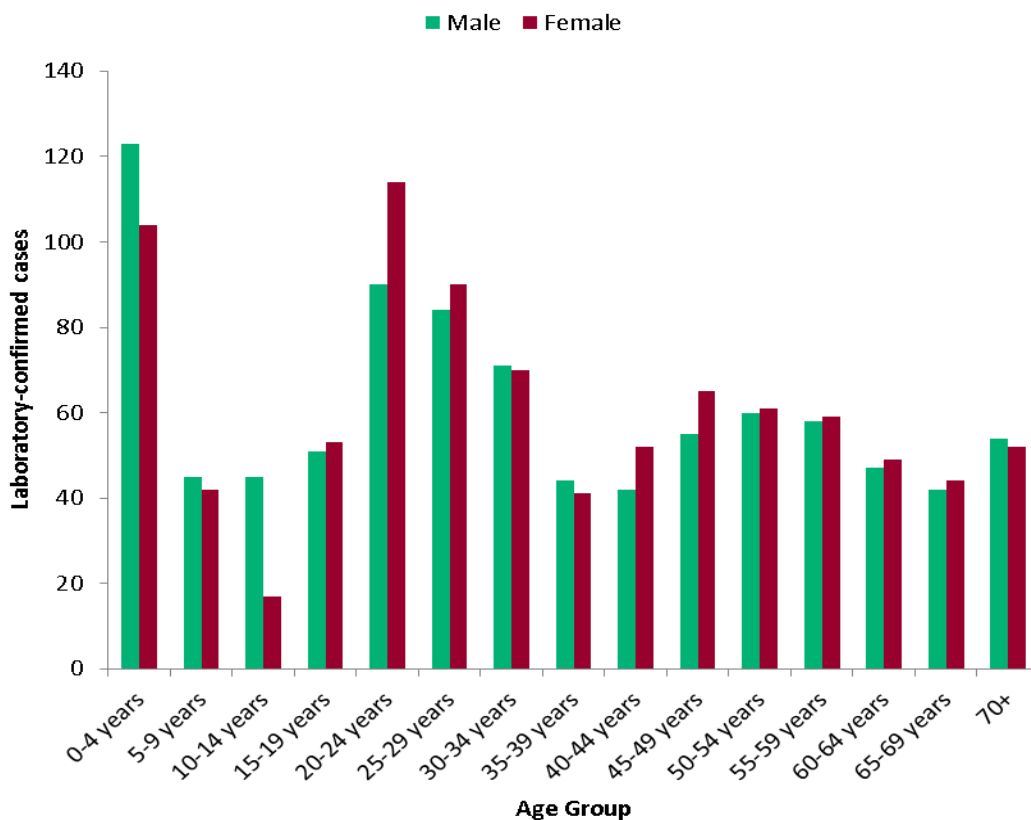


# Travel-associated cases

## Age and sex

In 2014, 1,824/1,882 (97%) travel-associated cases of *Salmonella* infection in EWNl had known information about age and sex [Figure 2], of which 49% were female. The median age was 30 years for males [range 0 to 81 years] and 33 years for females [range 0 to 87 years], similar to previous years. Those aged 16 years and under represented 22% (409/1,824) of cases with a particular peak in the 0 to 4 years age group, which represented 12% (227/1,824) of total cases. The age distribution for travel-associated cases is consistent with that for all cases of *Salmonella* infection [2].

**Figure 2. Travel-associated laboratory-confirmed cases of *Salmonella* spp. by age and sex, England, Wales and Northern Ireland: 2014 (N=1,824).**



## Geographical distribution

Geographical areas were assigned based on patient postcode; where patient postcode was missing the sending laboratory postcode was used. The South East PHE centre reported the highest proportion (15%) of travel-associated cases of *Salmonella* infection in 2014, which is consistent with the previous year [Table 2]. Most regions reported a decrease in cases in 2014 compared to 2013. The largest decrease was reported in the West Midlands and the North East (40% and 39% respectively). \*For Wales the 2013 data were incomplete. So % change cannot be accurately determined.

**Table 2. Travel-associated laboratory-confirmed cases of *Salmonella* spp. by geographical distribution, England, Wales and Northern Ireland: 2013 and 2014.**

Geographical area	2014	2013	% change between 2013 and 2014
South East	276	380	-27%
South West	248	268	-7%
London	237	357	-34%
North West	224	290	-23%
East of England	203	270	-25%
Yorkshire and Humber	190	253	-25%
East Midlands	154	140	10%
West Midlands	113	188	-40%
Wales	105	33*	-
North East	84	137	-39%
Northern Ireland	48	75	-36%
<b>Grand total</b>	<b>1882</b>	<b>2391</b>	<b>-21%</b>

## Travel history

*Salmonella* spp. occur worldwide. In 2014, 117 different destinations of travel were reported for travel-associated *Salmonella* cases. The top 30 are listed in Table 3.

**Table 3. Travel-associated laboratory-confirmed cases of *Salmonella* spp. by country of travel, England, Wales and Northern Ireland: 2013 and 2014.**

Country/region of travel†	2014	2013	% change between 2013 and 2014
Egypt	169	257	-34%
Turkey	155	215	-28%
India	141	168	-16%
Spain	130	196	-34%
Thailand	117	199	-41%
Pakistan	80	97	-18%
Tunisia	67	132	-49%
Morocco	64	73	-12%
Mexico	62	29	114%
Vietnam	39	28	39%
Cuba	34	72	-53%
USA	25	4	525%
Indonesia	23	30	-23%
Kenya	23	53	-57%
Nigeria	21	27	-22%
Tanzania	21	17	24%
Greece	19	21	-10%
Malaysia	19	21	-10%
Malta	19	11	73%
United Arab Emirates	19	18	6%
Gambia	16	26	-38%
Poland	16	14	14%
Nepal	15	9	67%
Philippines	14	18	-22%
France	13	14	-7%
Singapore	13	7	86%
Uganda	13	11	18%
Other countries	295	354	-17%
Country not stated	(N=86) 251	(N=98) 282	-11%

N= number of countries.

†Totals may not match those stated in Table 1, where two or more countries of travel were stated for a case, each listed country was counted individually.

Overall, there was a 21% decrease in travel-associated cases of *Salmonella* reported in 2014 compared to 2013. Consistent with this overall decrease, the top eight countries all reported decreases (16% to 49%). Of note are the large increases in cases reported in travellers returning from Mexico (29 in 2013 compared to 62 in 2014) and the USA (four in 2013 compared to 25 in 2014). However, any trends should be interpreted with caution as travel history reporting is incomplete (see \*note in [data sources section](#) below).

### **Salmonella types**

In 2014, 208 different serovars of *Salmonella* spp were reported for travel-associated *Salmonella* cases, plus 164 cases that were unnamed or with unspecified serotype. The top 20 are listed in Table 4. Just over a third of cases with a named serovar (654/1,718) were caused by *Salmonella* Enteritidis, of which phage type (PT) 8, PT1, PT14b, PT4 and PT35 were the most commonly reported. From April 2014, whole genome sequencing (WGS) was introduced alongside phage typing for *Salmonella* spp. Phage typing for *Salmonella* spp. ended in November 2015 and will no longer be included in subsequent reports.

**Table 4. Travel-associated laboratory-confirmed cases of *Salmonella* spp. by serovar, where serovar is known, England, Wales and Northern Ireland: 2013 and 2014.**

Serovar	2014	2013	% change between 2014 and 2013
<i>Salmonella</i> Enteritidis	654	831	-21%
<i>Salmonella</i> Typhimurium	258	330	-22%
<i>Salmonella</i> Kentucky	68	78	-13%
<i>Salmonella</i> Stanley	63	68	-7%
<i>Salmonella</i> Virchow	50	65	-23%
<i>Salmonella</i> Infantis	42	68	-38%
<i>Salmonella</i> Newport	39	57	-32%
<i>Salmonella</i> Saint-Paul	34	39	-13%
<i>Salmonella</i> Java	28	39	-28%
<i>Salmonella</i> Braenderup	26	27	-4%
<i>Salmonella</i> Corvallis	24	26	-8%
<i>Salmonella</i> Bareilly	22	19	16%
<i>Salmonella</i> Agona	20	49	-59%
<i>Salmonella</i> Mbandaka	20	18	11%
<i>Salmonella</i> Hadar	19	30	-37%
<i>Salmonella</i> Oranienburg	19	22	-14%
<i>Salmonella</i> Chester	12	10	20%
<i>Salmonella</i> Bredeney	11	11	0%
<i>Salmonella</i> Poona	11	10	10%
Other	298	447	-33%
<b>Grand total</b>	<b>1718</b>	<b>2244</b>	<b>-24%</b>



## Data sources

- data for the total reports of *Salmonella* in England and Wales 2005 to 2014 were provided by the PHE Gastrointestinal Infections Department
- data for the total reports of *Salmonella* in Northern Ireland are from the [Health and Social Care Public Health Agency \(HSC PHA\) website](#)
- travel-associated infections for England (2005 to 2014) and Wales (2005 to 2012) comprise laboratory reports sent to the PHE Centre for Infectious Disease Surveillance and Control, Colindale, through the Co-Surv system and were extracted from the Second Generation Surveillance System (SGSS) using sample specimen date
- travel-associated infections for Wales 2013 and 2014 were supplied by Public Health Wales extracted from the information bureau for infectious disease (IBID). There was a change in electronic reporting in Wales between 2013 and 2014
- travel-associated infections data for Northern Ireland were provided by HSC PHA and comprise laboratory reports extracted from Co-Surv using sample specimen date

### **\*Note**

Surveillance questionnaires are not routinely completed for all *Salmonella* cases. Travel history information is mainly collected from laboratory reports where it is available. Dates of travel and onset are not usually given and therefore incubation period is not considered when assigning travel history. Travel history on laboratory request forms is underreported for *Salmonella* infections although not to the same extent as *Campylobacter* or *Cryptosporidium* infections. Furthermore, recent changes in the data reporting systems have resulted in some travel information being lost from the reports. So the trends presented in this report should be interpreted with caution. In particular, travel-associated cases for Wales may be underrepresented in this report.

## References

1. Health Protection Agency. Foreign travel-associated illness, England, Wales and Northern Ireland 2007 report. London; HPA: 2007. Available at: [webarchive.nationalarchives.gov.uk/20140714084352/www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb\\_C/1204186178825](http://webarchive.nationalarchives.gov.uk/20140714084352/www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1204186178825)
2. Public Health England. Salmonella rates by age group and year [Accessed 25 October 2016]. Available at: [www.gov.uk/government/publications/salmonella-by-age-group-and-year/salmonella-by-age-group-and-year](http://www.gov.uk/government/publications/salmonella-by-age-group-and-year/salmonella-by-age-group-and-year)