

Chapter 5

REPORTS OF *SALMONELLA* IN DEER, HORSES AND RABBITS

Isolations of *Salmonella* from deer, horses and rabbits are reportable as these species may be reared for human consumption.

Deer

There were approximately 29,100 farmed deer registered in Great Britain at the June 2013 Agricultural Census, which is an increase of 3.9% compared with 2012 and an increase of 4.6% compared with 2011. There were no isolations of *Salmonella* in deer during 2013 compared with one isolation during each of 2012 (*S. Newport*), 2011 (*S. Newport*) and 2010 (*S. Typhimurium*) (Table 5.1).

Horses

The number of horses recorded as being kept in Great Britain at the June 2013 Agricultural Census was just under 281,500 which was a fall of 7.1% compared with 2012 and 15.2% compared with 2011.

There were 44 isolations of *Salmonella* from horses in 2013, which was similar to 2012 when there were 42 isolations (Table 5.3). Unlike previous years when the most commonly reported serovar was *S. Typhimurium*, the most common finding during 2013 was *Salmonella* 4,5,12:i:- (11 isolations, 25.0% of total isolations from horses). During the previous four years, this serovar was recovered in only 2.4% – 9.4% of isolations per year (Figure 5.1). *S. Typhimurium* and *Salmonella* 4,12:i:- were the second most commonly reported serovars from horses during 2013 with nine isolations of each (20.5% of total isolations from horses). The relative proportions for these serovars differ from 2012 when 47.6% of all horse isolations were *S. Typhimurium* and 11.9% were *Salmonella* 4,12:i:-.

Horses are considered to be a common reservoir of *S. Typhimurium*. The nine isolations of *S. Typhimurium* reported from horses during 2013 comprised of two isolations of DT104 and single isolations of seven other phage types, all of which have previously been reported in horses with the exception of U323 which was reported from a horse with clinical disease (details of the presenting signs were not available) (Table 5.4 and Figure 5.3).

The phage types of *Salmonella* 4,5,12:i:- reported during 2013 were U311 (seven isolations; 63.6% of total isolations), DT193 and U323 (both two isolations, 18.2% of total isolations) (Figure 5.5). Phage type

U323 had never previously been reported from horses in GB. In contrast, the majority of the *Salmonella* 4,12:i:- reports during 2013 were DT193 (eight isolations; 88.9% of total isolations) (Figure 5.6).

The number of isolations of *S. Newport* in horses fell to one during 2013, compared with two during 2012 and five or six per year during 2009 – 2011. The isolation was fully susceptible to all the antimicrobials tested against. In some parts of the country *S. Newport* can be associated with badgers.

There were three isolations of *S. Enteritidis* in 2013 compared with four in 2012 and seven in 2011. One of these was PT20 which has never been reported in horses in Great Britain before (Figure 5.4). It was isolated from a horse with clinical disease (details of the presenting signs were not available). As with cattle, the phage types of *S. Enteritidis* found in horses are a closer match with human strains than with those from poultry, but PT11 is associated with hedgehogs.

There were seven isolations of *S. Anatum* in 2013 compared with five isolations in 2012 and two in 2011. This serovar is often wild bird related.

There were two isolations of *S. Butantan* reported from horses during 2013, both of which were from voluntary surveillance at the same premises. This is the first time that this serovar has been reported from horses in Great Britain.

Rabbits

There were no isolations of *Salmonella* from rabbits during 2013 (Table 5.2). There have been no isolations since 2004, with the exception of 2012 when there was a single isolation of *S. Monschaui*, which is more commonly associated with ducks.

Table 5.1: Isolations and incidents of *Salmonella* in deer on all premises in Great Britain

<i>Salmonella</i> subspecies	2009		2010		2011		2012		2013	
	Isolations	Incidents	Isolations	Incidents	Isolations	Incidents	Isolations	Incidents	Isolations	Incidents
ENTERICA ENTERICA										
Newport	-	-	-	-	1	1	1	1	-	-
Typhimurium	-	-	1	1	-	-	-	-	-	-
TOTAL	-	-	1	1	1	1	1	1	-	-

Table 5.2: Isolations and incidents of *Salmonella* in rabbits on all premises in Great Britain

<i>Salmonella</i> subspecies	2009		2010		2011		2012		2013	
	Isolations	Incidents	Isolations	Incidents	Isolations	Incidents	Isolations	Incidents	Isolations	Incidents
ENTERICA ENTERICA										
Monschaui	-	-	-	-	-	-	1	1	-	-
TOTAL	-	-	-	-	-	-	1	1	-	-

Table 5.3: Isolations and incidents of *Salmonella* in horses on all premises in Great Britain

Salmonella subspecies	2009		2010		2011		2012		2013	
	Isolations	Incidents	Isolations	Incidents	Isolations	Incidents	Isolations	Incidents	Isolations	Incidents
ENTERICA ENTERICA										
Agama	4	3	1	1	2	2	1	1	-	-
Agona	-	-	-	-	2	2	-	-	-	-
Anatum	-	-	1	1	2	2	5	5	7	5
Berta	-	-	1	1	-	-	-	-	-	-
Bovismorbificans	1	1	-	-	-	-	-	-	-	-
Butantan	-	-	-	-	-	-	-	-	2	1
Derby	-	-	2	1	-	-	-	-	-	-
Dublin	1	1	-	-	1	1	1	1	-	-
Enteritidis	2	2	4	3	7	7	4	4	3	3
Kottbus	-	-	-	-	2	2	-	-	-	-
Mbandaka	1	1	-	-	-	-	-	-	1	1
Mikawasima	1	1	-	-	-	-	-	-	-	-
Montevideo	-	-	-	-	1	1	-	-	-	-
Muenster	1	1	-	-	-	-	-	-	-	-
Nagoya	-	-	2	2	-	-	1	1	-	-
Newport	5	5	5	5	6	5	2	2	1	1
Ohio	-	-	1	1	-	-	-	-	-	-
Oslo	-	-	3	3	1	-	1	1	-	-
Stourbridge	1	1	-	-	-	-	1	1	1	1
Typhimurium	11	10	16	16	22	18	20	19	9	8
4,5,12:i:-	3	3	3	2	4	4	1	1	11	9
4,12:i:-	-	-	1	1	-	-	5	4	9	8
UNSPECIFIED										
untypable strains	1	1	-	-	-	-	-	-	-	-
TOTAL	32	30	40	37	50	44	42	40	44	37

Figure 5.1: Isolations of the most common serovars in horses in GB 2009 - 2013

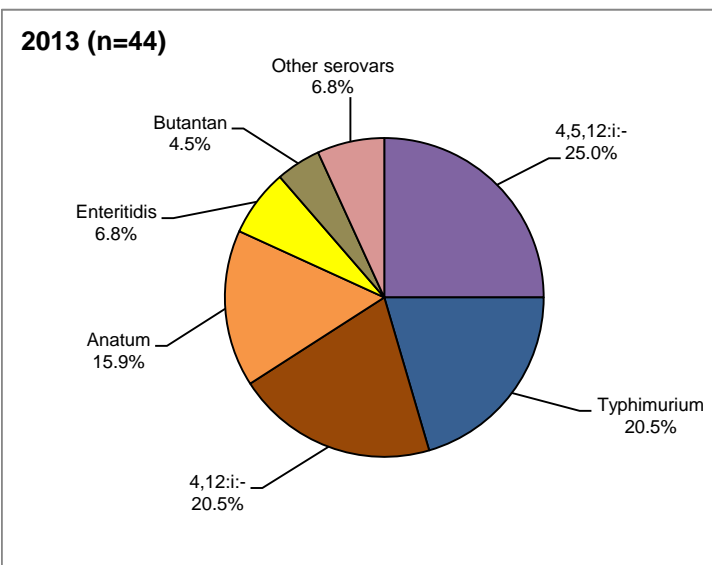
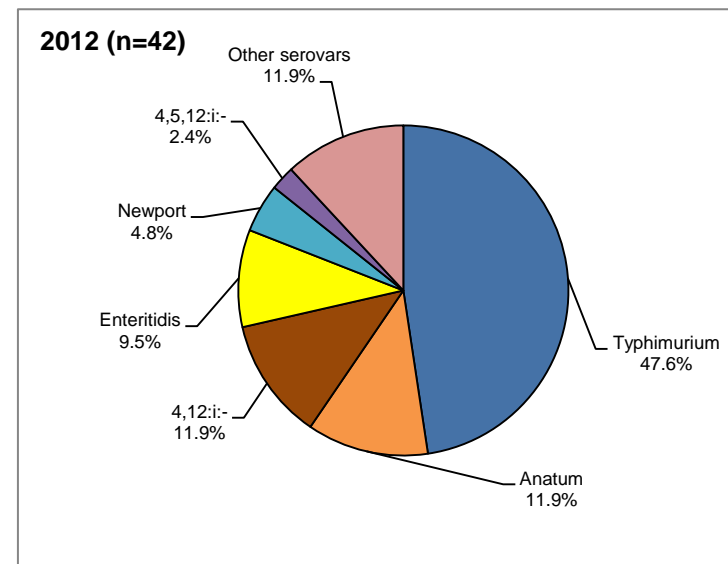
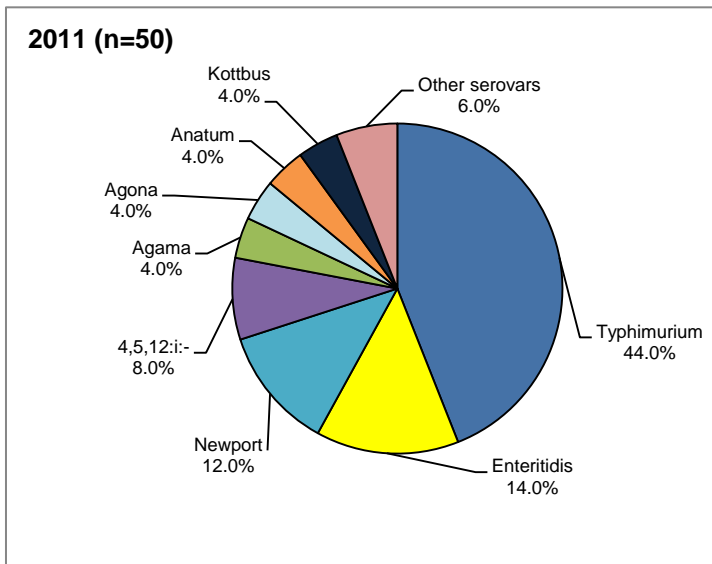
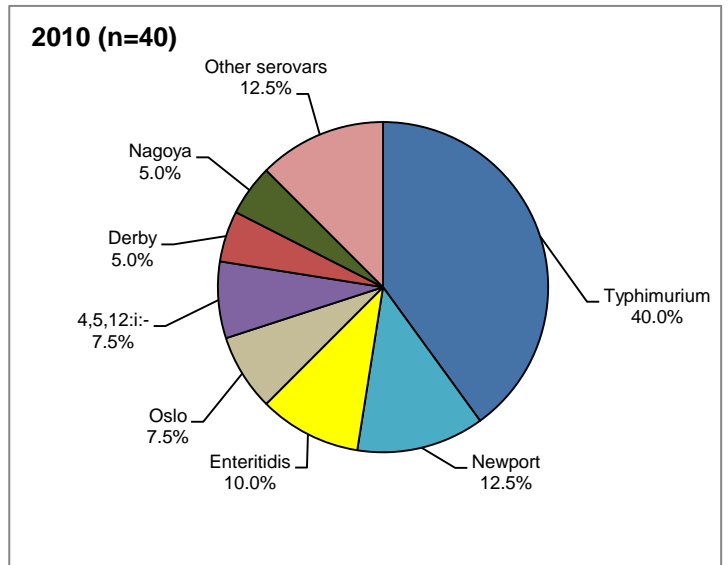
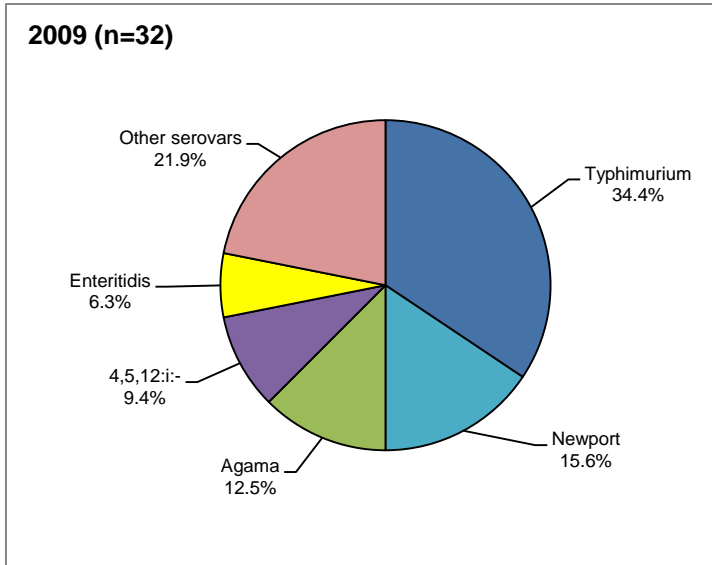


Figure 5.2: *S. Enteritidis*, *S. Newport*, *S. Typhimurium* and monophasic variant *S. Typhimurium* as a proportion of all isolations in horses in Great Britain 1993 - 2013

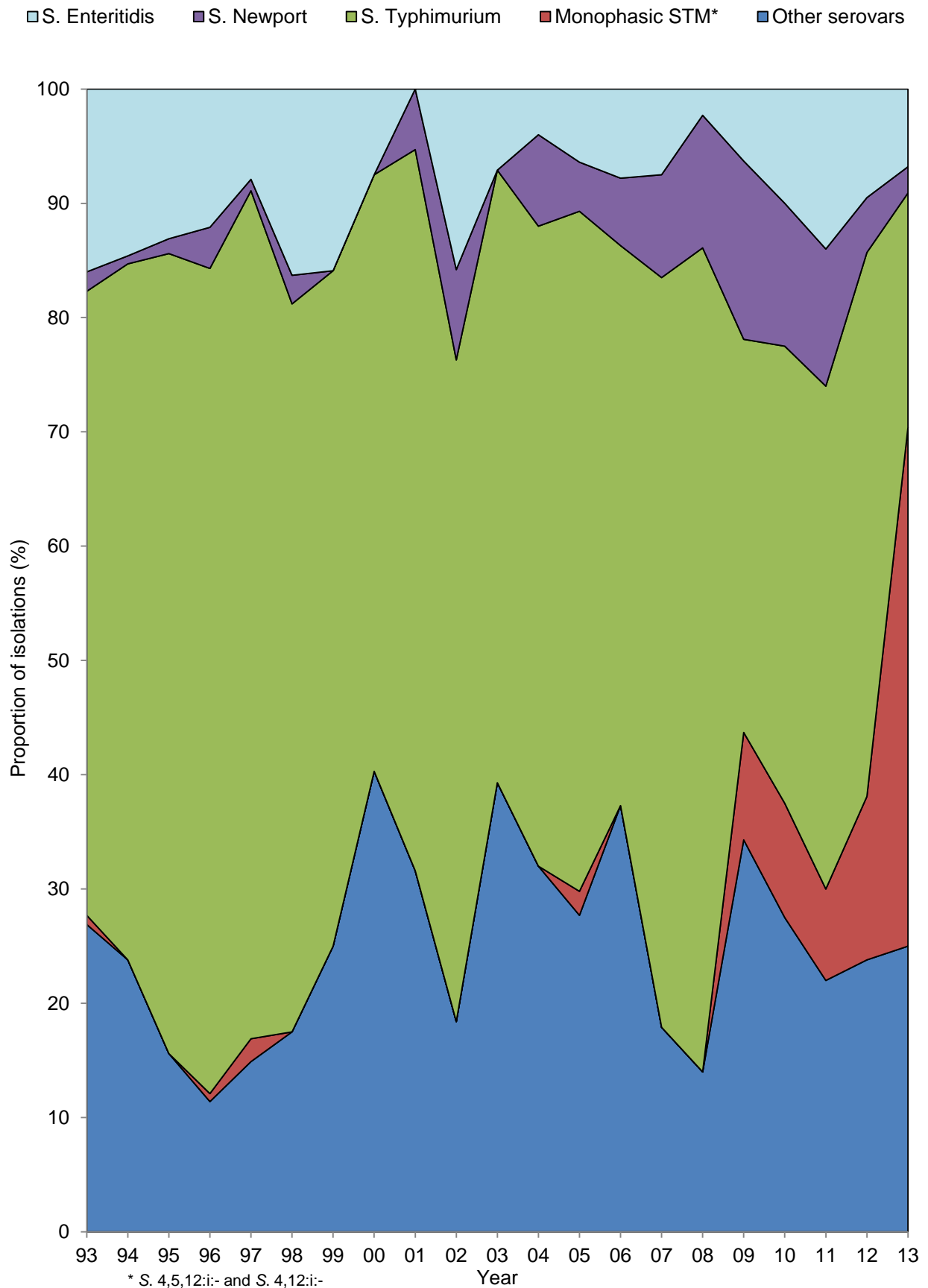


Table 5.4: Isolations and incidents of *S. Typhimurium* in horses on all premises in Great Britain

Phage Types	2009		2010		2011		2012		2013	
	Isolations	Incidents	Isolations	Incidents	Isolations	Incidents	Isolations	Incidents	Isolations	Incidents
1	-	-	1	1	-	-	2	2	-	-
2	1	1	1	1	-	-	1	1	-	-
8	-	-	3	3	3	3	4	4	-	-
12	-	-	3	3	1	1	1	1	1	1
13	-	-	-	-	1	1	-	-	-	-
30	-	-	-	-	-	-	1	1	-	-
40	-	-	-	-	3	3	-	-	-	-
41	1	1	-	-	-	-	1	1	-	-
41b	-	-	2	2	4	2	-	-	-	-
56	1	1	-	-	1	1	-	-	-	-
66a	-	-	-	-	-	-	1	1	1	1
80	1	1	1	1	-	-	-	-	-	-
101	2	2	-	-	1	1	1	1	-	-
104	-	-	-	-	1	1	1	1	2	2
104b	1	1	-	-	-	-	-	-	1	1
107	-	-	-	-	-	-	1	1	-	-
120	-	-	1	1	1	1	-	-	-	-
126	-	-	-	-	-	-	2	1	-	-
135	-	-	1	1	-	-	-	-	-	-
161	1	1	-	-	-	-	-	-	-	-
193	1	1	1	1	2	2	-	-	1	1
193a	-	-	1	1	-	-	-	-	-	-
U302	1	1	-	-	-	-	1	1	1	1
U310	-	-	1	1	-	-	2	2	-	-
U323	-	-	-	-	-	-	-	-	1	1
U325	-	-	-	-	1	1	-	-	-	-
UNTY	1	-	-	-	2	1	1	1	-	-
NOPT	-	-	-	-	-	-	-	-	1	-
RDNC	-	-	-	-	1	-	-	-	-	-
TOTAL	11	10	16	16	22	18	20	19	9	8

Figure 5.5: *Salmonella* 4,5,12:i:- phage types in horses in GB 2009 - 2013

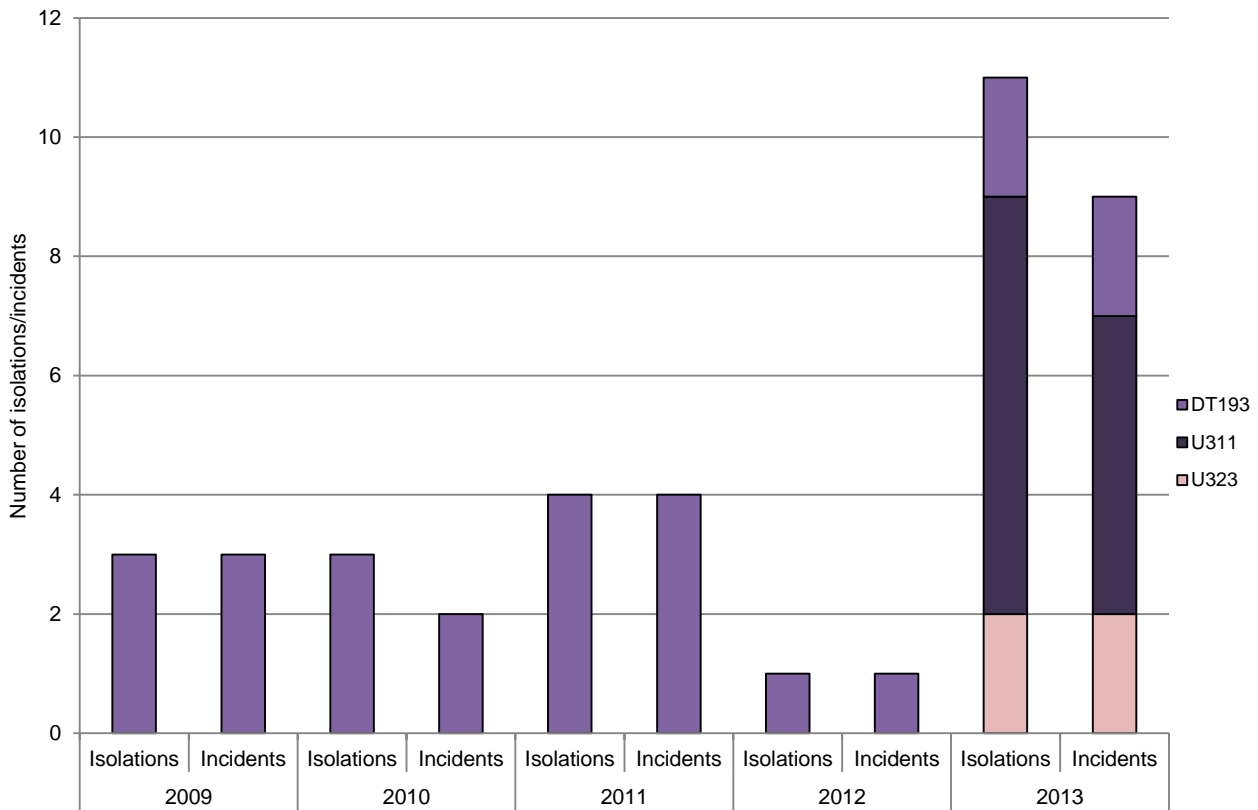


Figure 5.6: *Salmonella* 4,12:i:- phage types in horses in GB 2009 - 2013

