

Cross-Canada Disease Report

Rapport des maladies diagnostiquées au Canada

Distribution of *Streptococcus suis* capsular types from 2001 to 2007

Streptococcus suis is an important pathogen of swine causing meningitis, sudden death, septicemia, endocarditis, and pneumonia (1). It is also an important human pathogen affecting people working with pigs or pork (2). The distribution of different serotypes varies depending on the geographical origin of the strains (1). As a reference laboratory, we routinely serotype *S. suis* isolates recovered by veterinary laboratories in Québec from tissue samples of diseased pigs. Serotype determination remains a valuable tool used by veterinary practitioners and diagnosticians, to understand the epidemiology of a particular outbreak or to increase the possibility of success of a vaccination program within a herd.

Since the last published paper presents data up to the year 2000 (3), the present communication presents the distribution of the most prevalent serotypes identified from 2001 to 2007. The detailed distribution of serotypes isolated in 2007 is also reported. Animals from which these isolates had been obtained presented a variety of clinical signs, including nervous signs, sudden death, arthritis, and/or respiratory problems. The data presented are isolations of *S. suis* from pigs; it is not possible to determine whether *S. suis* was the sole causative agent of the pathological condition. Serotyping was carried out by using the co-agglutination test with reference antisera. All reagents for serotyping are prepared in our laboratory according to a procedure described by Gottshalk et al (4).

The total number of isolates received varied each year, without any specific tendency; extreme values of 359 and 647 were received in 2007 and 2004, respectively (Table 1). Similar to previous reports (3), serotypes 2, 3, and 1/2 were the 3 most prevalent serotypes, followed by serotypes 4, 7, and 8, a group whose members had similar prevalence. The presence of these serotypes as the dominant ones in Québec seems to have been consistent during the past 15 y (3). Other serotypes are usually present at a prevalence of $\leq 5\%$; however, their presence has not been consistent throughout this period.

Data from the past 7 y also confirm that serotype 2, considered to be the most virulent serotype, usually predominates, but to a considerably lower extent than found in European countries (1). Interestingly, commercial vaccines available in the market include only this serotype. It has already been suggested that serotype 2 isolates from North America, which lack 3 virulence markers known as muramidase-released protein (MRP), extracellular factor (EF), and the hemolysin (suilysin), are less virulent than their counterparts in Europe that are

Table 1. Annual prevalence (percentage) of the 6 *Streptococcus suis* serotypes most frequently isolated in Québec between 2001 and 2007

Capsular type	Annual prevalence (%)						
	2001 ^a (600) ^b	2002 (537)	2003 (367)	2004 (647)	2005 (677)	2006 (486)	2007 (359)
2	16	17	25	22	14	13	12.5
1/2	10	5	8	7	8	13	11
3	13	12	14	10	22	16	11
4	4	7	6	4	7	6	6
7	7	5	5	7	8	5	7.5
8	7	7	5	6	8	7	6
NT ^c	20	26	21	18	18	15	12

^a Year

^b Total number of strains received

^c Nontypable, including autoagglutinating isolates

Table 2. Distribution of capsular types of *Streptococcus suis* isolated in Québec for the year 2007

Capsular type	Number of isolates	% of total isolates	Capsular type	Number of isolates	% of total isolates
1	0	0	18	7	2
2	39	12.5	19	2	< 1
1/2	45	11	20	0	0
3	41	11	21	4	1
4	23	6	22	20	5.5
5	17	5	23	12	3
6	6	2	24	0	0
7	27	7.5	25	3	< 1
8	21	6	26	0	0
9	8	2	27	2	< 1
10	3	< 1	28	2	< 1
11	3	< 1	29	1	< 1
12	3	< 1	30	1	< 1
13	0	0	31	4	1
14	5	1	32	0	0
15	8	2	33	2	< 1
16	4	1	34	3	< 1
17	1	< 1	NT ^a	42	12

^a Nontypable, including autoagglutinating isolates

positive for these factors (2). This may explain, at least in part, the lower prevalence of this serotype in Québec, as reported here, and also the lower frequency of transmission and disease in humans observed in North America, compared to that reported in Europe (2).

Detailed data on the distribution of different serotypes in 2007 are presented in Table 2. In addition to the above mentioned serotypes, 17 and 20 isolates belonging to serotypes 5 and 22, respectively, were recovered last year. These serotypes,

however, had not been frequently isolated in previous years. Interestingly, isolates belonging to serotypes 20, 26 and 32 have not been recovered in Québec since 2001, and serotypes 32 and 34 have been classified as being genetically different from other *S. suis* serotypes (5). Five isolates of serotype 14 were recovered in 2007. This serotype is also considered as a zoonotic agent, especially in the United Kingdom (2), and was recently isolated for the first time from a human case of meningitis in Canada (unpublished observations).

References

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