

2.3 Invasive Group A Streptococcal Disease

Summary

Number of cases, 2009: 60

Crude incidence rate, 2009: 1.42 per 100,000 population

Notifications

Sixty cases of invasive Group A streptococcal (iGAS) disease were notified in 2009. This corresponds to 1.42 iGAS cases per 100,000 population [95% confidence interval (CI), 1.08 to 1.82 per 100,000] and represents a decrease since 2008 when the iGAS rate was 1.65 per 100,000 population (95% CI, 1.29 to 2.09 per 100,000). All 60 cases were confirmed, defined as patients with group A *Streptococcus* (GAS), or *Streptococcus pyogenes*, isolated from a sterile site.

Patient demographics

Of the 60 cases, 34 (60%) were males and 26 (40%) were females, with ages ranging from 11 months–95 years (mean, 47 years; median, 47 years). iGAS was more common in young children and older adults (Figure 1).

Geographic spread and seasonal variation

Table 1 outlines the numbers and crude incidence rates (CIRs) of iGAS disease by HSE area from 2004 to 2009.

Of note, the highest number of cases and CIR in 2009 occurred in the HSE-E (n=32; CIR, 2.13 per 100,000 population).

In 2009, almost half of all cases (n=29) occurred between April and July, with another peak in January (n=7).

Enhanced surveillance data

Enhanced data fields were entered by 13 laboratories for 50 (83%) iGAS cases, which represents an increase in completion of enhanced surveillance data from 2008 (69%, 48 of 70 cases). The source laboratory could not be ascertained for six of the cases. A wide variation in completed fields was observed.

Isolate details

GAS was isolated from a sterile site in 48 of 50 cases, primarily from blood cultures (n=44 isolates, or 94%) but also abscesses (n=1), deep tissue (n=2) and pleural fluid (n=1).

Serological typing data, based on the detection of M and T-proteins, were available on five isolates only from two laboratories: *emm*/M1 (n=2), M5 (n=1), M12 (n=1) and M28 (n=1). Enhanced data were available

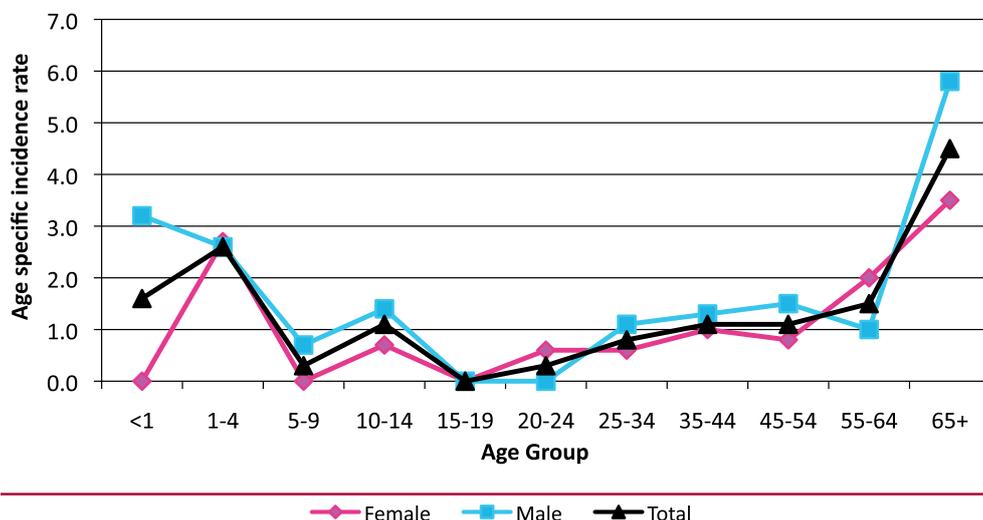


Figure 1. Age and sex specific rates of iGAS disease in 2009

on three patients with iGAS (emm/M1, M12 and M28), all of whom presented with streptococcal toxic shock syndrome (STSS).

Clinical details

As in 2008 and previous years, bacteraemia (n=45 cases, including cases where bacteraemia was not specifically stated but GAS was isolated from blood) and cellulitis (n=13) were the most common clinical presentations, followed by necrotising fasciitis (n=5), STSS (n=7; 3 of which were implied based on the clinical presentation given), myositis (n=2), pneumonia (n=2), septic arthritis (n=2), erysipelas (n=1) and puerperal sepsis (n=1). Note that cases could have more than one clinical presentation.

Risk factors

Risk factors associated with iGAS disease included age over 65 years (n=18), skin and wound lesions (n=16), diabetes (n=3), steroid use (n=1), malignancy (n=6), intravenous drug use (IVDU) (n=3), and varicella infection (n=2). Note that cases could have one or more associated risk factors: 21 cases had one risk factor, 11 had two risk factors and two had three risk factors. No risk factors were identified for 22 cases. Among the

seven cases with STSS, age over 65 years was identified as a risk factor in four cases, skin lesions in four cases and IVDU in one case. All STSS cases had at least one risk factor.

Clinical management

Surgical intervention was required for eight patients ranging in age from 2 to 74 years, who presented with a variety of clinical presentations including necrotising fasciitis (n=2), cellulitis (n=3), and abscesses or deep tissue infection (n=3).

Admission to the intensive care unit was required for 16 patients (compared to seven in 2008), ranging in age from 2 to 79 years, with the following clinical presentations:

- bacteraemia +/- cellulitis (n=8)
- bacteraemia, STSS and necrotising fasciitis +/- myositis (n=4)
- bacteraemia, cellulitis, puerperal fever, erysipelas and STSS (n=1)
- STSS (n=1)
- bacteraemia and pneumonia (n=1)
- enlarged neck glands (n=1)

Table 1. Numbers (n) and Crude Incidence Rates (CIRs) per 100,000 population of iGAS disease by HSE Area, 2004-2009

HSE Area	2004		2005		2006		2007		2008		2009	
	n	CIR										
HSE-E	25	1.67	19	1.27	37	2.47	28	1.87	31	2.07	32	2.13
HSE-M	0	0.00	1	0.40	2	0.79	0	0.00	0	0.00	2	0.79
HSE-MW	1	0.28	3	0.83	2	0.55	2	0.55	3	0.83	5	1.38
HSE-NE	1	0.25	3	0.76	5	1.27	3	0.76	10	2.54	3	0.76
HSE-NW	0	0.00	3	1.27	1	0.42	3	1.27	3	1.27	1	0.42
HSE-SE	7	1.52	1	0.22	4	0.87	10	2.17	8	1.74	8	1.74
HSE-S	1	0.16	1	0.16	3	0.48	4	0.64	5	0.80	5	0.80
HSE-W	0	0.00	18	4.34	7	1.69	7	1.69	10	2.41	4	0.97
IRELAND	35	0.83	49	1.16	61	1.44	57	1.34	70	1.65	60	1.42

Risk factors included age over 65 years (n=7), skin and wound lesions (n=6), malignancy (n=2), IVDU (n=2), diabetes (n=1) and varicella infection (n=1). Seven patients had one risk factor and six had two risk factors. No risk factors were identified for three patients. Length of ICU stay was provided for 12 cases ranging from one to 44 days (mean, 8.4 days; median/mode, 7 days). Surgical intervention was required for two of four patients with necrotising fasciitis.

Other epidemiological information

Three cases (all bacteraemia, including one with cellulitis) were reported as hospital-acquired compared to one case in 2008. As in 2008, no outbreaks of iGAS were notified in 2009.

Outcome

Outcome at seven-days following GAS isolation was reported for 30 cases:

- 27 were still alive
- three patients died: GAS was the main or contributory cause of death in two (both of whom were IVD users and aged 20-25 years)

The seven-day case fatality rate (CFR) for iGAS disease was 10% in 2009, an increase from 4% (one death) in 2008.

In addition to the above, the overall outcome was stated for a further eight cases:

- three (all aged over 75 years) were reported to have died but it was not stated if these deaths were directly attributable to iGAS
- four patients were recovering
- one patient recovered

Of the seven STSS cases, one patient died resulting in a case fatality rate (CFR) of 17% (with outcome provided for six of the seven cases).

Antimicrobial susceptibility

Antimicrobial susceptibility data were reported on 48 iGAS isolates (46 from blood, one from tissue and one from a wound) by 12 laboratories in 2009. All isolates were susceptible to penicillin (n=47) and vancomycin (n=40). Resistance to erythromycin was reported in three (6%) of 48 isolates, to clindamycin in one (4.5%) of 22 isolates and to tetracycline in one (4%) of 25 isolates.

While enhanced data were available for over 80% of cases, improved completion of the enhanced questionnaire for all cases will further augment our understanding of iGAS disease in Ireland.

HPSC thanks the microbiology laboratories for their contribution to date and encourages those that do not, to complete enhanced data forms and to submit antimicrobial susceptibility data on all iGAS cases along with their EARS-Net quarterly returns.

The enhanced surveillance form can be downloaded from the HPSC web site at: <http://www.hpsc.ie/hpsc/A-Z/Other/GroupAStreptococcalDiseaseGAS/SurveillanceForms/>

Further information on iGAS disease in Ireland, including national guidelines, is available at: <http://www.ndsc.ie/hpsc/A-Z/Other/GroupAStreptococcalDiseaseGAS/>

The figures presented in this summary are based on data extracted from the Computerised Infectious Diseases Reporting (CIDR) System on 14th September 2010.