

Rapid communications

INCREASE IN INVASIVE GROUP A STREPTOCOCCAL INFECTIONS IN ENGLAND, WALES AND NORTHERN IRELAND, 2008-2009

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Increases in invasive and non-invasive group A streptococcal diseases are currently being seen in the United Kingdom. National enhanced surveillance is being launched to examine the clinical presentations, risk factors, outcome and clustering patterns of cases to further inform public health management strategies.

Following the increases in the number of scarlet fever cases identified across England during the 2007-8 season, further increases are being seen during the current 2008-9 season, accompanied by increases in invasive group A streptococcal (*Streptococcus pyogenes*) infections [1,2]. Although group A streptococcal infections typically increase at this time of year, the rises seen currently are above the seasonally expected.

Scarlet fever

In the United Kingdom (UK), statutory notifications of scarlet fever, based on clinical symptoms consistent with scarlet fever, are submitted by diagnosing clinicians to the local public health officials. A total of 222 notifications of scarlet fever were made

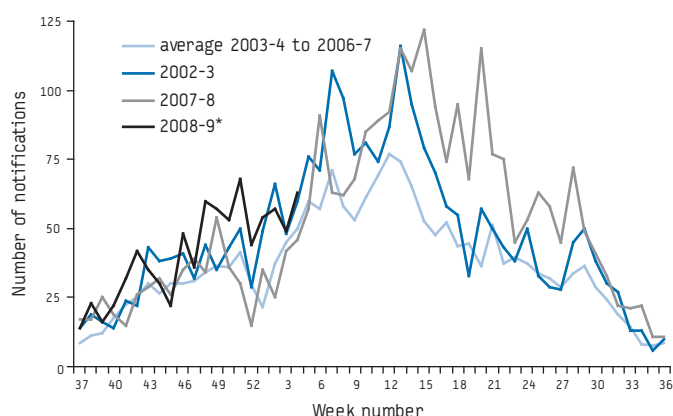
during the last four weeks of 2008 by clinicians across England, compared to 134-141 notifications for the same period in 2004 to 2007, and 153 notifications for 2003, the last peak year for scarlet fever (Figure 1). Numbers of notifications were elevated relative to the period between 2003 and 2007 in all nine regions of England except the South West and Yorkshire and the Humber. Notifications for the first four weeks of 2009 showed a continuation of the high level of activity, with 223 notifications compared to 143-180 for 2004-2008 and 223 for 2003.

Invasive group A streptococcal infection

Cases of invasive group A streptococcal (iGAS) infection, defined through the isolation of group A streptococci from normally sterile sites, are identified through national routine laboratory surveillance and isolate referral to the national reference laboratory. Routine surveillance data identified 151 cases of iGAS in December 2008, with a further 98 reports made so far for January 2009, compared to 80-127 for December in the years 2003 to 2007 (Figure 2).

FIGURE 1

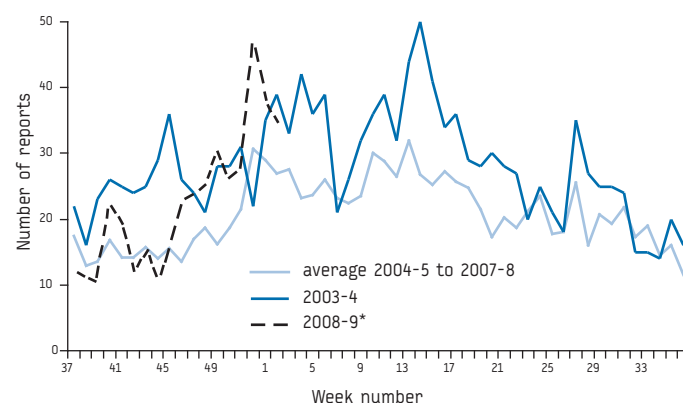
Scarlet fever notifications, England 2002-3 to 2008-9



* data available up to week 4, 2009

FIGURE 2

Weekly reports of invasive group A streptococcal infections, England, Wales and Northern Ireland 2002-3 to 2008-9



* reports received by 2 February 2009 up to week 2, 2009 (further reports expected)

Increases above the total seen in December 2003, the last peak season for invasive disease, have been seen in three of nine regions in England and Northern Ireland so far, whilst data for Wales remain within the seasonally expected range. Given delays inherent within routine laboratory reporting, further reports for 2008 can be expected. Overall, 2% (2/97) of iGAS isolates from December 2008 were reported as erythromycin-resistant. Age- and sex-specific rates of iGAS infection show highest rates in the elderly and infants (Figure 3).

iGAS isolates referred to the national reference laboratory from hospitals in England showed a substantial increase in December 2008 (n=143) compared to the same period in 2007 (n=86). The most common *emm*/M-types identified in December 2008 were *emm*/M1 (25% of all iGAS isolates), *emm*/M3 (25%), *emm*/M89 (9%) and *emm*/R28 (9%). Of the 100 GAS isolates received and typed so far for 2009, there has been a significant increase in *emm*/M3, with 50% of isolates typed belonging to this *emm* type.

Discussion

Periodic upsurges in iGAS have been reported in many countries across Europe and North America since the 1980s [3], with Finland the latest country to report an increase in iGAS from 2006 onwards [4,5]. The reasons behind these increases are poorly understood. Analysis of scarlet fever notifications in England over the last century suggest cyclical incidence patterns, with resurgences occurring on average every four years [6]. The last peak season for scarlet fever was 2002-3, although notifications were also high for 2003-4. A recent project started in the UK to examine the potential value of using syndromic indicators of superficial manifestations of GAS infection in forecasting rises in invasive disease, found that clinically diagnosed scarlet fever mirrored the pattern of iGAS [7], and as such the current increases in invasive disease may be attributable to a natural cycle in disease incidence.

The potential remains for changes in virulence of circulating strains or for increased incidence in particular risk groups, as seen in the UK during the early 2000s [8]. It is also possible that the significant influenza activity in the UK this winter may be contributing directly or indirectly by increasing transmission of GAS and/or rendering individuals with influenza more susceptible

to secondary infection with iGAS [9]. Analysis of isolates submitted to the national reference laboratory has not identified any unusual types circulating this season, although an increase in *emm*3 is currently being seen. Further typing results are awaited to confirm this trend, which would be of concern given its association with a higher case fatality rate than most other *emm* types [10].

As a result of the current rise in iGAS notifications, national enhanced surveillance is being introduced in order to gain additional information on clinical presentations, risk factors, outcome and clustering. Alerts have been issued to regional health protection staff and consultant microbiologists, and a template letter outlining the current situation and reminding clinicians of possible early signs and symptoms of iGAS has been made available for cascade to hospital emergency departments and primary care services.

Acknowledgements

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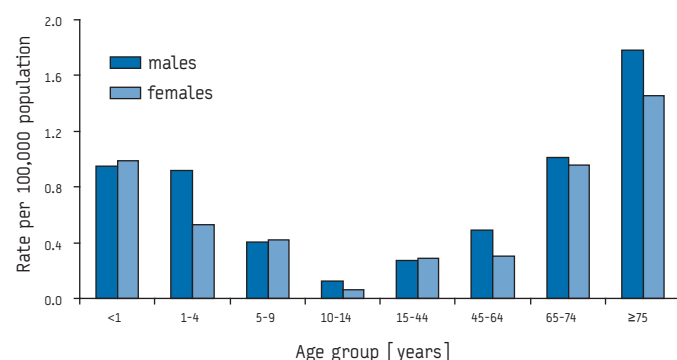
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FIGURE 3

Age- and sex-specific rates of invasive group A streptococcal infection*, England, Wales and Northern Ireland, December 2008-January 2009



* reports received by 2 February 2009 (further reports expected)