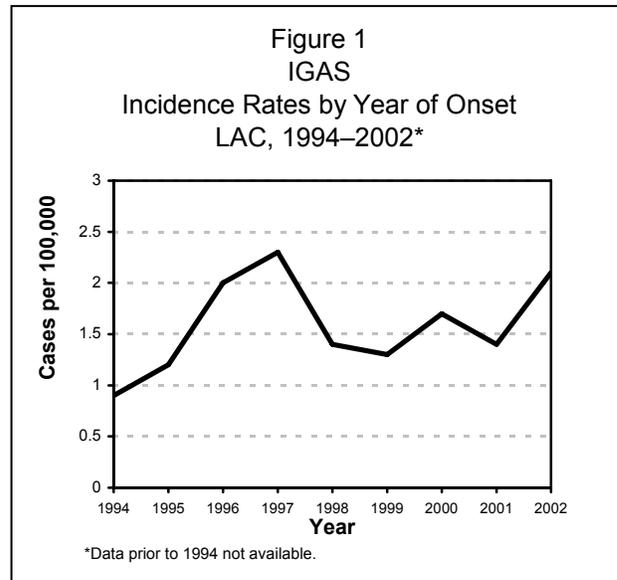




INVASIVE GROUP A STREPTOCOCCUS (IGAS)

CRUDE DATA	
Number of Cases	192
Annual Incidence	
LA County	2.1
United States	N/A
Age at Diagnosis	
Mean	50
Median	52
Range	<1–95 years
Case Fatality	
LA County	8.8%
United States	N/A



^a Cases per 100,000 population.

DESCRIPTION

Invasive Group A Streptococcal (IGAS) disease is caused by the group A beta-hemolytic *Streptococcus pyogenes* bacterium. Transmission is primarily by direct contact. For LAC surveillance purposes, IGAS is defined as isolation of *Streptococcus pyogenes* from a normally sterile body site (e.g., blood, cerebrospinal fluid, synovial fluid, or from tissue collected during surgical procedures), or from a non-sterile site if associated with streptococcal toxic shock syndrome (STSS) or necrotizing fasciitis (NF). Illness manifests as various clinical syndromes, including: bacteremia without focus; sepsis; cutaneous wound, or deep soft-tissue infection; septic arthritis; and pneumonia. IGAS occurs in all age groups but is most common among the very old. Infection can result in severe illness, including death.

In 2002, case patients with a culture positive for GAS from a normally sterile site were categorized as IGAS, with or without identification of a clinical syndrome. Case patients with a culture positive for GAS from a sterile or nonsterile site were categorized as having NF or STSS if the diagnosis was made by the treating physician, with or without fulfillment of the CDC or Council of State and Territorial Epidemiologists (CSTE) case definitions for these syndromes.

DISEASE ABSTRACT

- The number of cases increased substantially over the previous year.
- Cases were sporadic and unassociated. No clusters or outbreaks were reported.

STRATIFIED DATA

Trends: The number of reported cases increased 51%, from 127 cases in 2001 to 192 cases in 2002, approaching the peak seen in 1997 (Figure 1). The number of cases of STSS and NF occurring during 2002 were comparable to those the previous year (Table 1).



Table 1: Frequency of IGAS, STSS and NF—LAC, 1994–2002

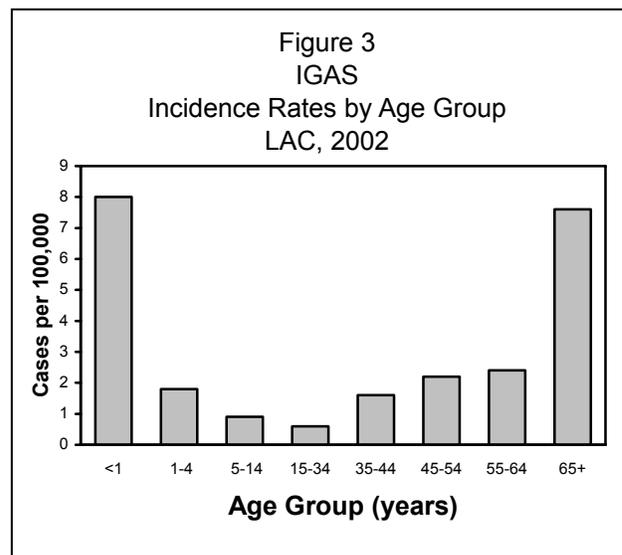
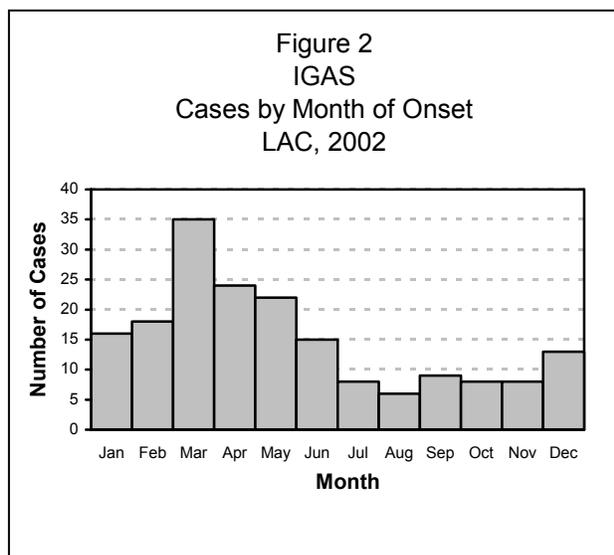
Year	IGAS		STSS		NF	
	N	% IGAS	N	% IGAS	N	% IGAS
1994	83	35.0	29	35.0	18	22.0
1995	103	16.0	16	16.0	17	17.0
1996	175	5.0	9	5.0	13	7.0
1997	205	3.0	7	3.0	9	4.0
1998	128	6.0	8	6.0	13	10.0
1999	114	5.0	6	5.0	11	10.0
2000	154	5.0	8	5.0	20	13.0
2001	127	2.4	3	2.4	15	12.0
2002	192	2.5	5	2.5	13	7.0

Seasonality: While cases occur throughout the year, a pronounced winter/spring seasonality commonly associated with streptococcal pharyngitis was observed (Figure 2).

Age: Although incidence was highest among infants aged less than 1 year (8.0 cases per 100,000 population), the mean age of cases was 50 years and the median was 52 years (range newborn to 95 years). In 2002, the number of cases in those aged 65 or more increased substantially since the previous year (from 32 to 75, Figure 3). No reason for the increase in this age group was apparent.

Gender: The male-to-female rate ratio was 1.4:1.

Race/Ethnicity: Race/ethnicity was known for 76% of cases, an increase of 22% from 2001. Of these, 40% were White, 39% were Latino, 11% were Black, 8% were Asian and 1% were Other.



Location: The crude incidence rate for IGAS was highest in SPA 2 (3.1 cases per 100,000 population), compared with a mean of 2.1 per 100,000 for all of LAC (Figure 4). However, many of the rates are unstable because they are based on small numbers.

Clinical Syndromes: The distribution of clinical syndromes among cases is shown in Table 2. The majority of cases (n=73, 38%) were categorized as sepsis, followed by necrotizing fasciitis (n=13, 7%),



septic arthritis (n=7, 4%), pneumonia (n=6, 3%), cellulitis, STSS (n=5, 3%), meningitis (n=1, 0.5%), and other (n=1, 0.5%). The clinical presentation of 80 cases (42%) was not available.

Of the 13 cases of NF, the mean age was 37 years, the median was 37 years and the range was 2 years to 75 years. More than half (54%, n=7) were female. Eight case patients underwent surgical debridement and amputation was reported in three case patients.

COMMENTS

Although IGAS disease is not a mandated reportable disease in California, ACDC has requested laboratories, hospitals, and healthcare providers to report IGAS disease since 1993. Surveillance has been predominately passive; information pertaining to patient demographics, clinical presentation, intervention, and outcome has often been incomplete. In 2002, 79% of cases were reported by hospitals and 21% by laboratories. Overall, there was a 51% increase in the number of cases reported. The reason for the increase—whether a result of improved awareness by providers, a cyclical upswing or a true increase in morbidity—is unclear.

Case investigation was expanded in 2002, the first year that active efforts were made to collect more detailed data. As a result, collection of demographic and clinical information improved and was obtained on 58% of cases. However, this represents 42% of cases for which clinical information was not obtained. As a consequence, clinical and outcome data for 2002 are incomplete. Although public health interventions to prevent IGAS are limited, active efforts to obtain thorough demographic and clinical information about cases will continue in order to improve data analysis, make meaningful year-to-year comparisons, and identify potential opportunities for prevention.

ADDITIONAL RESOURCES

For information about IGAS and antibiotic resistance in LAC, visit: www.lapublichealth.org/acd/antibio.htm

IGAS Publications:

- The Working Group on Prevention of Invasive group A Streptococcal Infections. Prevention of Group A streptococcal disease among household contacts of case-patients and among postpartum and postsurgical patients: Recommendations from the Centers for Disease Control and Prevention. *Clin Infect Dis* 2002; 35:950–9.
- O'Brien KL, Beall B, Barret NL, et al. Epidemiology of invasive group A streptococcal disease in the United States, 1995–1999. *Clin Infect Dis* 2002; 36:268–276.

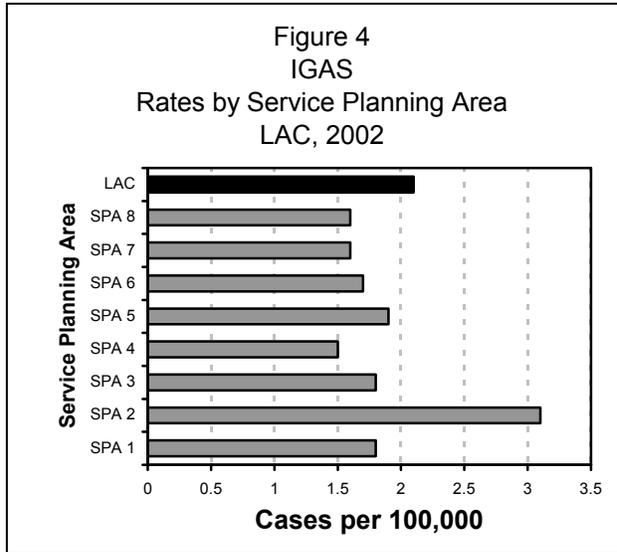


Table 2: Frequency and Percentage of IGAS Clinical Syndromes, LAC 2002

Syndrome	N	Percent
Sepsis	73	38.0
NF	13	7.0
Septic Arthritis	7	4.0
Cellulitis	6	3.0
Pneumonia	6	3.0
STSS	5	3.0
Meningitis	1	0.5
Other	1	0.5



- Laupland KB, Davies HD, Low DE, et al. Invasive group A streptococcal disease in children and association with varicella-zoster virus infection. Ontario Group A Streptococcal Study Group. *Pediatrics* 2000; 105(5):E60.
- The Working Group on Prevention of Invasive Group A Streptococcal Infections. Prevention of invasive group A streptococcal disease among household contacts of case-patients: Is prophylaxis warranted? *JAMA* 1998;15:1206–10.
- American Academy of Pediatrics. Committee on Infectious Diseases. Severe invasive group A streptococcal infections: A subject review. *Pediatrics*. 1998; 101:136–40.
- Zurawski CA, Bardsley MS, Beall B, et al. Invasive group A streptococcal disease in metropolitan Atlanta: a population-based assessment. *Clin Infect Dis* 1998; 27:150–7.
- Kaul R, McGeer A, Low D, et al. Population-based surveillance for group A streptococcal necrotizing fasciitis: Clinical features, prognostic indicators, and microbiologic analysis of seventy-seven cases. *Am J Med* 1997; 103:18–24.
- Davies HD, McGeer A, Schwarz B, et al. Invasive group A streptococcal infections in Ontario, Canada. *N Engl J Med* 1996; 335:545–54.
- The Working Group on Severe Streptococcal infections. Defining the group A streptococcal toxic shock syndrome. Rationale and consensus definition. *JAMA* 1993; 269:390–1.
- CDC. Case Definitions for Infectious Conditions Under Public Health Surveillance. *MMWR* 1997; 46:1–55.