State of Alaska Epidemiology Bulletin

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Bulletin No. 7
March 19, 2025

Increase in Disseminated Gonococcal Infections — Alaska, 2023–2024

Background

Disseminated gonococcal infection (DGI) is a rare but severe complication of untreated gonorrhea (GC), occurring in <1% of cases.[1] It develops when the sexually transmitted pathogen *Neisseria gonorrhoeae* enters the bloodstream and spreads from infected mucosal sites to distant sites in the body. This can result in clinical manifestations such as septic arthritis, polyarthralgia, tenosynovitis, petechial/pustular skin lesions, or bacteremia.[1] In rare cases, DGI can lead to more serious complications, including endocarditis or meningitis.[1]

In April 2024, the Alaska Section of Epidemiology (SOE) was notified of an increase in DGI among patients presenting with joint pain at Anchorage emergency departments. A review of statewide public health surveillance data identified a rise in DGI cases starting in July 2023. This *Bulletin* summarizes the epidemiology of DGI cases in Alaska since 2023 and offers recommended actions for response.

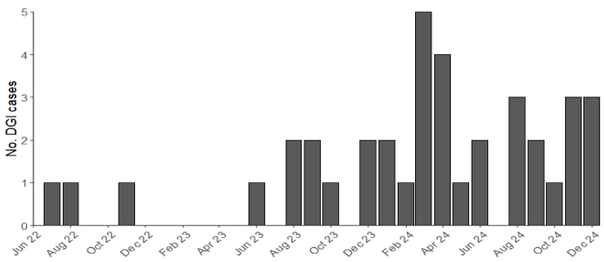
Methods

We reviewed DGI cases reported to SOE's disease surveillance system during 2023–2024 and abstracted demographic and clinical data from medical records. Antimicrobial susceptibility testing (AST) and whole genome sequencing (WGS) were conducted on available DGI isolates. Isolate relatedness was determined using single nucleotide polymorphism (SNP) analysis.

Results

In 2024, 27 DGI cases were reported to SOE, representing 1.3% (27/2,079) of all reported GC cases. There was a 3.7-fold increase in DGI cases in 2024 compared to 2023 (8/2,289, 0.35%) and a 10-fold increase compared to 2022 (3/2,304, 0.13%) (Figure).

Figure. DGI cases reported to SOE — Alaska, June 2022–December 2024



Among the 35 patients diagnosed with DGI during 2023–2024, the median age was 36 years (range: 17–72); 49% (n=17) were male. Most patients (71%) resided in Anchorage. Most cases (77%) were confirmed via isolation of *N. gonorrhoeae* by culture at a disseminated site of infection (synovial fluid, 46%; blood, 31%).[2] The most common clinical manifestations were septic arthritis (60%), fever (37%), and polyarthralgia (34%); two (6%) patients developed endocarditis.

Sixteen (46%) patients had ≥1 DGI-associated medical condition (HIV, immunosuppressive therapy, systemic lupus erythematosus, diabetes, hepatitis C, cirrhosis, substance use disorder, or previous DGI);[3] 81% (13/16) of those included a documented substance use disorder (10 with methamphetamine use and 6 with unspecified injection drug use).

Most (89%, n=31) patients were hospitalized, with 65% (20/31) requiring invasive procedures (18 aspirations, washouts, or debridements, and two heart valve replacements). Of the 25 (71%) patients who had mucosal site specimens collected on initial evaluation, 60% tested positive for *N. gonorrhoeae.* Seven (20%) patients experienced urogenital, pharyngeal, or rectal symptoms at the time or 1 month prior to DGI diagnosis.

Thirteen DGI isolates from 13 patients were available for AST and WGS; all were susceptible to ceftriaxone, the recommended first-line treatment for DGI.[4] Twelve (92%) isolates had the *porB1A* allele, which is highly correlated to DGI. Eight (62%) isolates had the MLST-18036 gonococcal sequence type, previously undetected in the US; all eight isolates were closely related genetically (average distance: <10 SNPs).

Discussion

The increase in DGI cases and the high relatedness of isolates observed during 2023–2024 raise concerns about the circulation of gonococcal strains with increased virulence within a potential sexual network in Alaska. Among all reported GC cases in Alaska in 2024, DGI prevalence was 5 to 22 times higher than estimates from the most recent national surveillance study.[1,3] In response, SOE introduced partner services investigations in October 2024 to enhance surveillance, promote treatment, and identify epidemiologic linkages; however, no such links have been identified to date.

DGI patients frequently lack mucosal symptoms and are not in groups recommended for frequent GC screening. Asymptomatic GC infections may lead to delayed or missed diagnoses as asymptomatic patients are less likely to seek care. Cultures from disseminated infection sites are often negative, and mucosal infections (e.g., urogenital, rectal, or pharyngeal) are often not tested before starting empiric treatment, making DGI primarily a clinical diagnosis.[5] Increasing GC testing and obtaining comprehensive social and partner histories could enhance DGI prevention and detection.

Recommendations

1. Screen for GC in all sexually active patients who use illicit drugs.
2. If DGI is clinically suspected, collect and process nucleic acid amplification test (NAAT) and culture specimens from exposed mucosal sites, in addition to culturing specimens from disseminated infection sites such as skin, synovial fluid, blood, or cerebral spinal fluid.
3. Manage DGI cases according to national STI Treatment Guidelines.[4]
4. Strongly consider hospitalization and consultation with an infectious disease specialist for initial therapy.[4]
5. Advise patients with DGI to refer sex partners from the past 60 days for evaluation, testing, and presumptive GC treatment.
6. Report all laboratory-confirmed and clinically suspected DGI cases to SOE, ideally within 24 hours and preferably through electronical reporting.
7. Perform AST on all DGI case isolates (from culture).
8. Contact SOE via telephone at 907-269-8000 for additional testing guidance and approval.

References

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5. CDC. Dear Colleagues Letter: Increasing Reports of Disseminated Gonococcal Infections (DGI), 2019 Accessed June 14, 2024

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