

Defining Variability in the Evaluation and Management of Children with Chronic Osteomyelitis

Ganga S. Moorthy¹, Angelique E. Boutzoukas^{1,2}, Daniel K Benjamin Jr.^{1,2}, Susan E Beekmann³, Phillip M Polgreen³, John S Bradley⁴, Walter Dehority⁵

¹Department of Pediatrics, Division of Infectious Diseases, Duke University School of Medicine; ²Duke Clinical Research Institute, School of Medicine, Duke University; ³Department of Internal Medicine, University of Iowa; ⁴Department of Pediatrics, Division of Infectious Diseases, University of California at San Diego, La Jolla, California, USA and Rady Children's Hospital San Diego; ⁵Department of Pediatrics, Division of Infectious Diseases, University of New Mexico School of Medicine



Correspondence: wdehority@salud.unm.edu

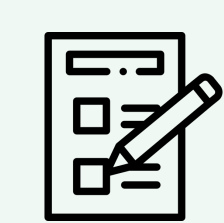
Abstract

Pediatric chronic osteomyelitis (COM) is an uncommon, poorly defined, debilitating disorder often requiring multiple surgeries and prolonged antibiotic courses. Serious long-term sequelae may occur. As accepted diagnostic criteria do not exist, assessments of disease incidence, medical/surgical approach to management and outcomes are lacking. In a national survey of 162 pediatric infectious disease physicians through the Emerging Infections Network of the Infectious Disease Society of America, tremendous variability in diagnostic approaches and management were noted. Formal diagnostic criteria and guidelines for medical/surgical management by pathogen/site of infection and presence of foreign material are needed to optimize care and outcomes. **This study highlights the need for multi-center, prospective studies of COM.**

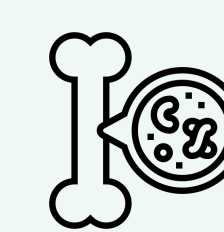
Background

- Chronic osteomyelitis (COM) in children is rare, but can have serious consequences and require prolonged therapy
- COM is a heterogeneous entity in terms of etiology, microbiology, and
- Due to lack of data in children, diagnosis and treatment of are largely based on clinician preference, site-specific practice, or individual patient characteristics
- No consensus exists regarding a definition & no management guidelines are available

Methods



14-question, confidential, web-based survey link was distributed to 387 PID physician members of the EIN between April 19 and May 22, 2022



Respondents were characterized by region, years of experience since fellowship and practice setting



Multiple choice and "choose all that apply" questions to assess diagnostic approach, comfort diagnosing and treating COM, and standard surgical and antibiotic management

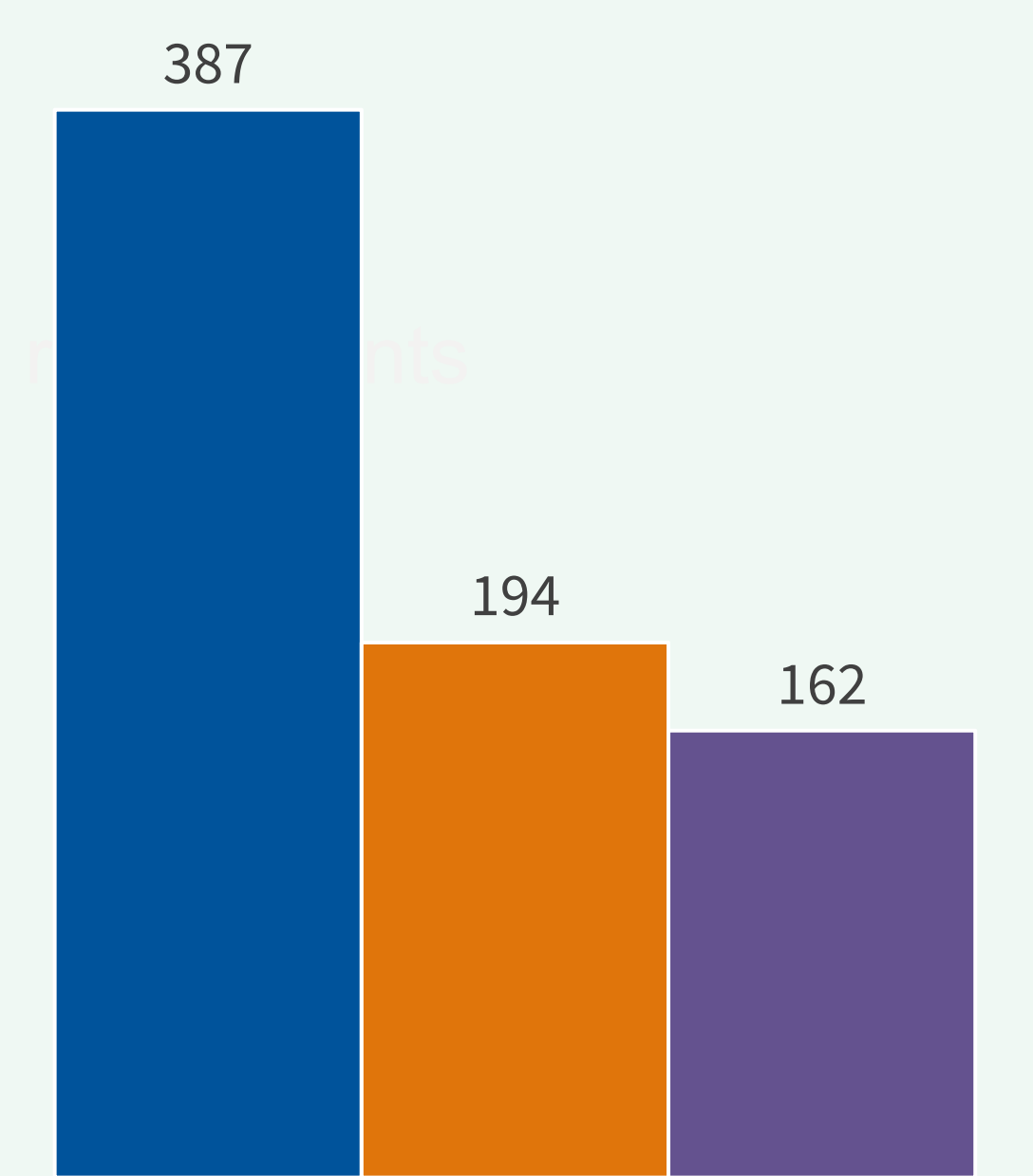
Conclusions

- Respondents considered COM to be a **heterogeneous entity** arising from multiple causes
- We found **substantial variability in both diagnosis and management of COM** among respondents
- Standardized definitions and prospective studies** to guide management for each presentation of COM are needed

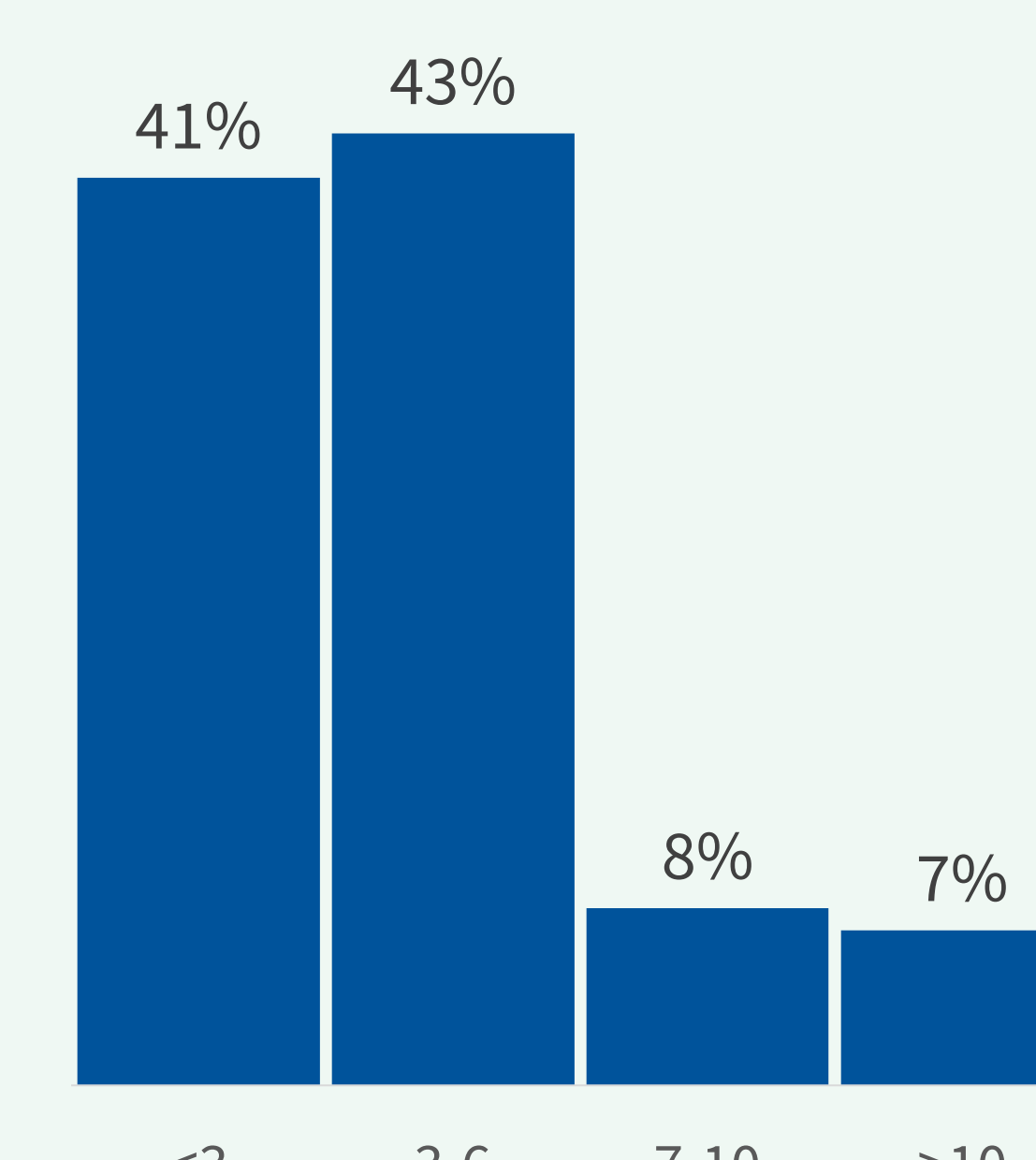
If you are interested in collaborating as part of a multi-center cohort study to further understand and define diagnosis and management of COM, please contact us (WDehority@salud.unm.edu)!

RESPONDENT DEMOGRAPHICS

Respondents predominately mid-career, academic physicians working in USA and Canada

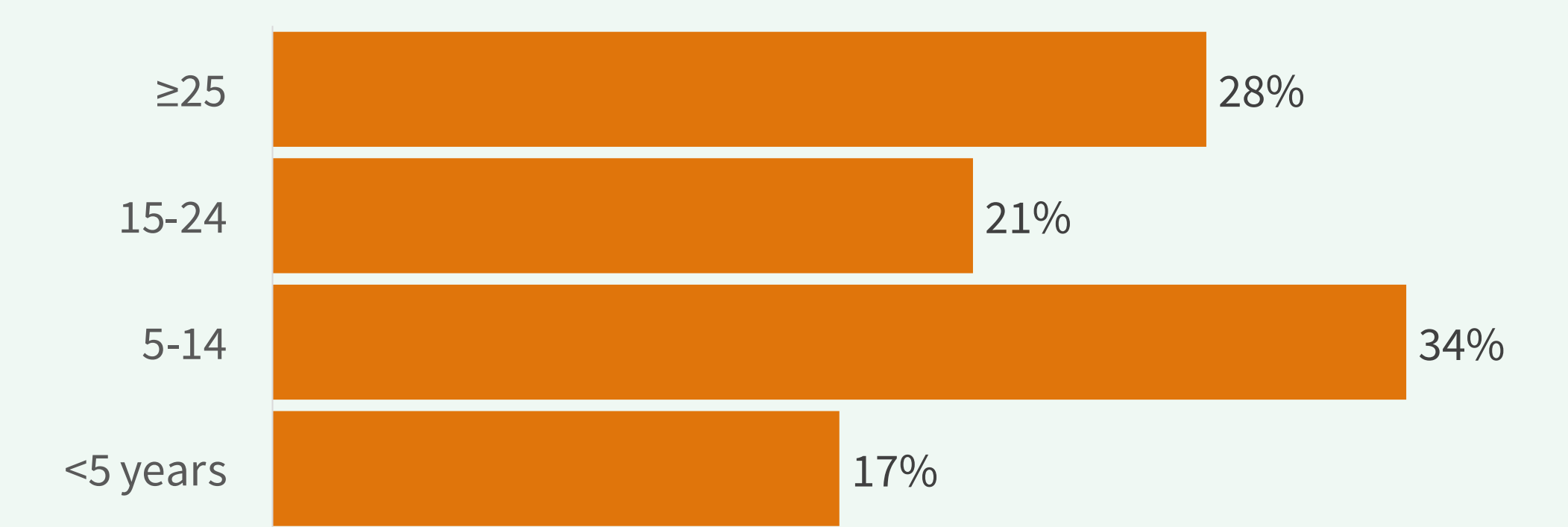


194 of 387 EIN PID members responded (50%); of these 162 (84%) cared for children with COM and were included in analyses

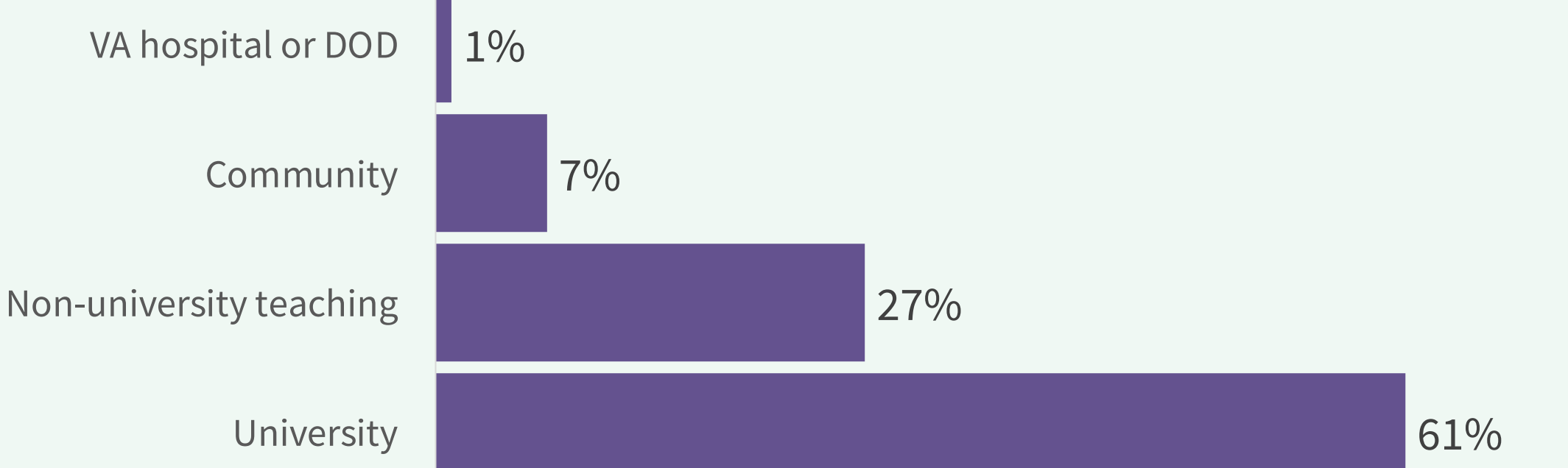


The majority of respondents care for 0-6 cases of COM each year with a minority caring for > 10 cases

Respondents' years of experience since fellowship

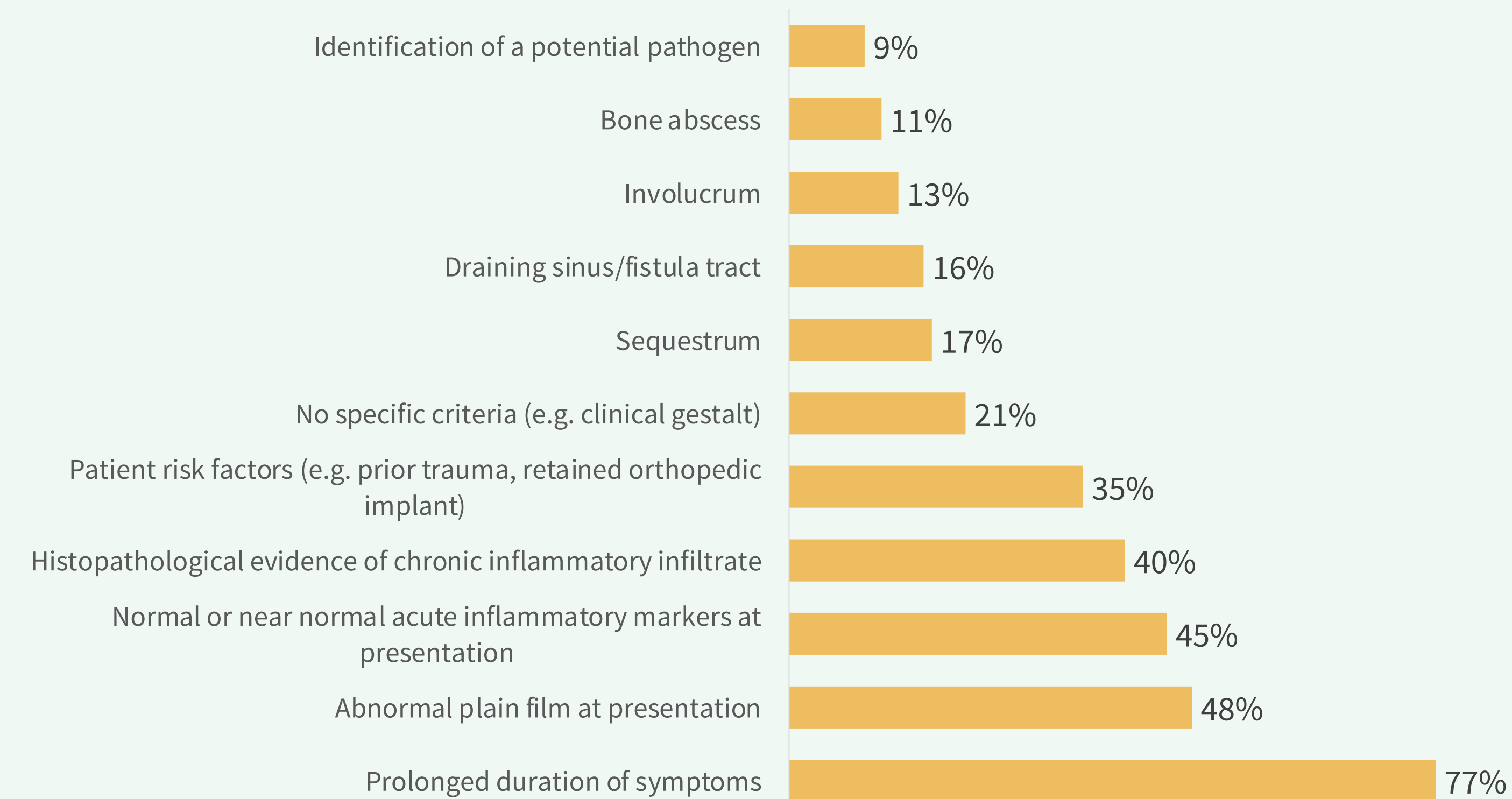


Respondents' primary hospital type



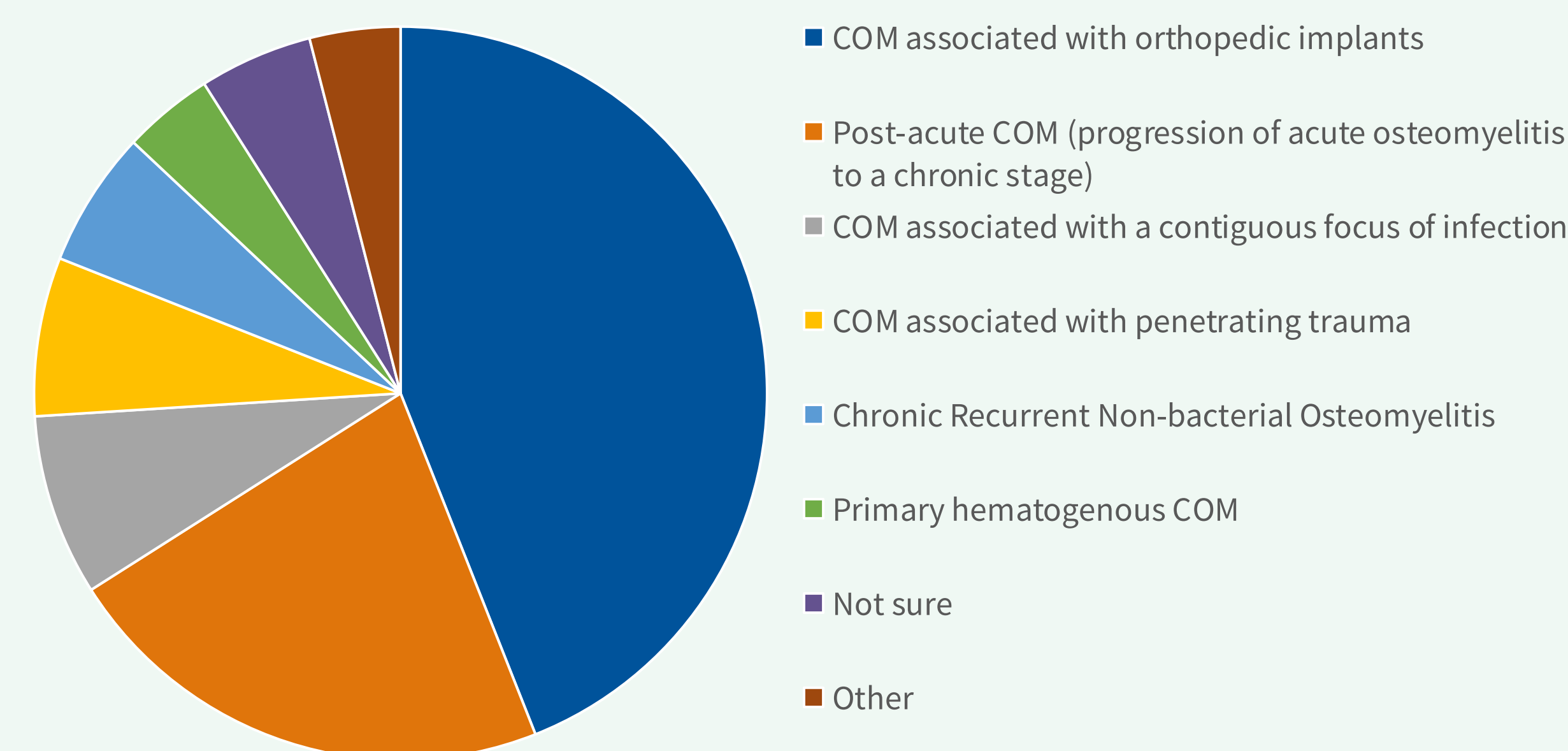
DIAGNOSIS

Substantial variability exists in findings considered necessary for diagnosis



ETIOLOGY

Respondents noted COM is not a single entity



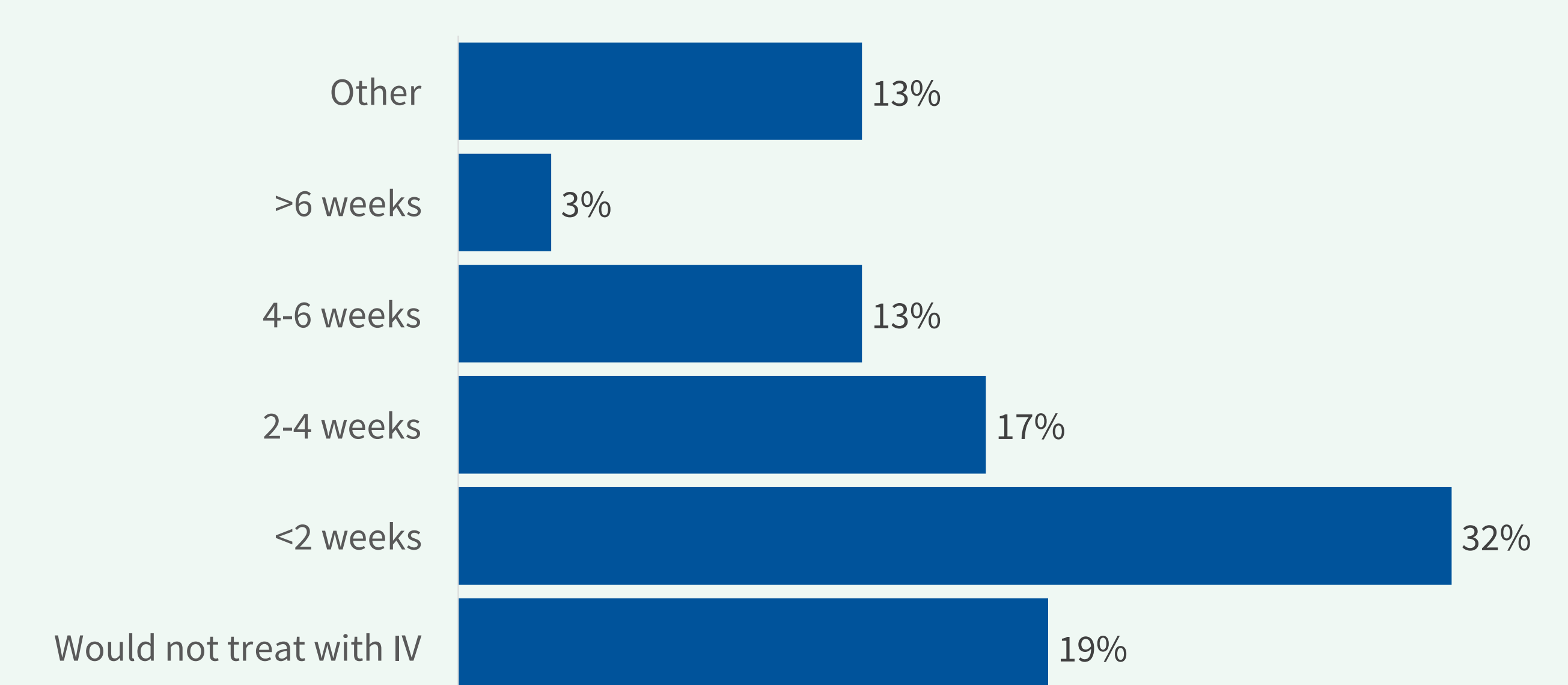
"Heterogenous disease that seems to require an individualized approach."

"This is very challenging both because of the wide variety of presentations and the small number of cases. It's more anecdote than evidence at this point."

"I think chronic osteomyelitis in children means a wide variety of things to different practitioners. It's a term in search of a definition."

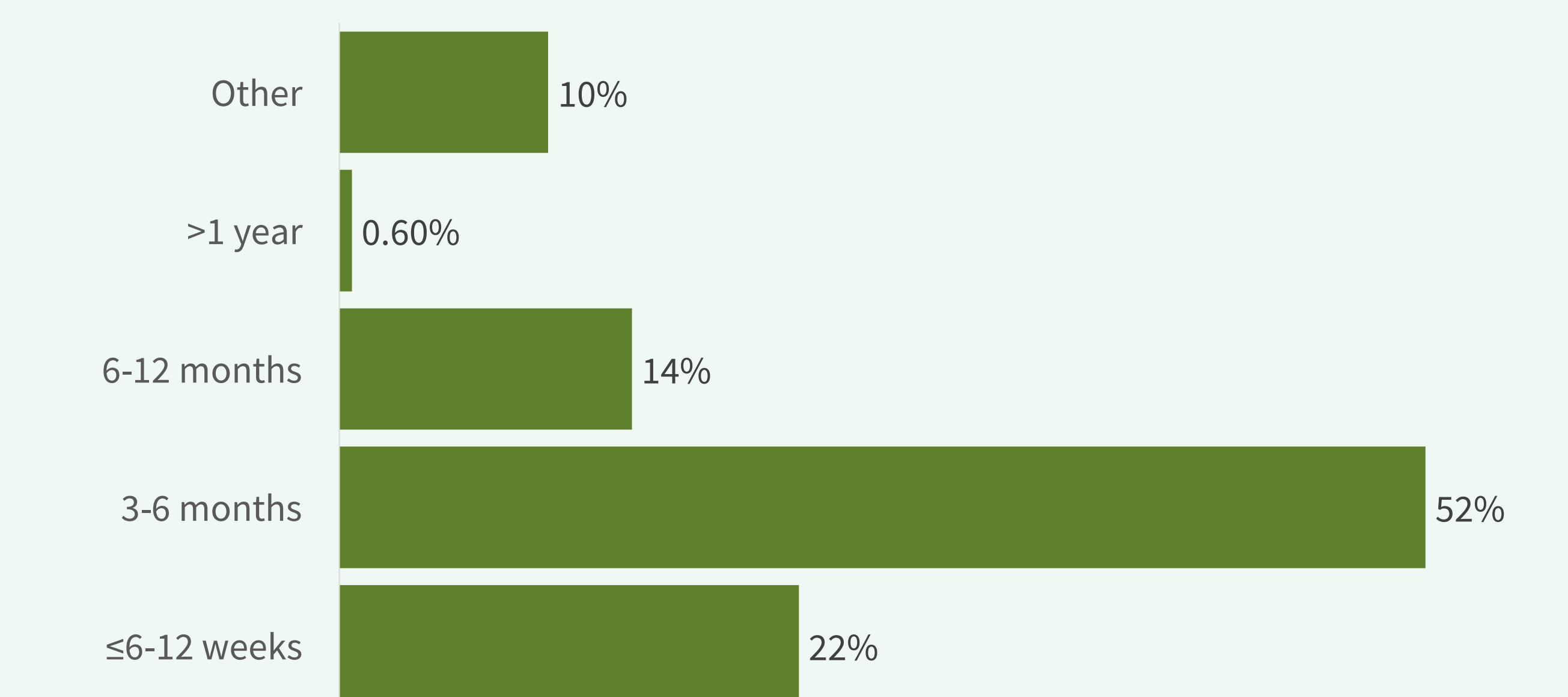
TREATMENT

Assuming surgical debridement, most treated COM with IV antibiotics for 0-4 weeks before transition to oral therapy



Most common criteria considered prior to transitioning to oral antibiotics included: improved physical exam findings (n = 97, 61%), extent of disease (n = 84, 53%), improvement in inflammatory markers (n = 81, 51%), and causative organism (n = 65, 41%)

Assuming surgical debridement, most respondents treated COM with oral antibiotics for 3-6 months



Typical duration of oral therapy was 3-6 months (52%) in patients with COM without retained orthopedic implants; however, respondents noted variability based on clinical scenario. In children with retained orthopedic implants, respondents reported treating with oral antibiotics until implants were removed (44%), and if treating for a fixed duration, typically for 3-6 (39%) or 6-12 months (51%).