scenarios and appropriate utilization in a systematic manner. Moreover, prior recommendations for ^{18}F-FDG PET/CT and radiolabeled leukocyte SPECT/CT have not incorporated input from stakeholder clinical and non-nuclear imaging societies.

Accordingly, the American Society of Nuclear Cardiology (ASNC) assembled a writing group with broad, multi-specialty expertise in the clinical management and multimodality imaging evaluation of cardiovascular infection, including representatives from multiple clinical and imaging societies. The goal of this writing group was to develop joint expert consensus recommendations on the use of ^{18}F-FDG PET/CT and radiolabeled leukocyte SPECT/CT imaging for the evaluation of cardiovascular infection in the multimodality context. They addressed clinical indications, diagnostic criteria, and a multimodality algorithmic approach to evaluation and management of cardiovascular infection. Evaluation of infection in ports, arteriovenous fistulas, and dialysis catheters, although important, were considered beyond the scope of this document.

This consensus statement provides a concise highlight of the current assessment of cardiovascular infection, addressing the strengths and weaknesses of pertinent imaging modalities. A standardized approach to the incorporation of ^{18}F-FDG PET/CT and radiolabeled leukocyte SPECT/CT imaging in the evaluation of cardiovascular infection can improve healthcare quality and outcomes of individuals with this morbid condition. Therefore, the aims of this effort were the following.

1. Assemble a panel of experts from key stakeholder organizations across multiple disciplines to discuss the contemporary role of ^{18}F-FDG PET/CT and radiolabeled leukocyte SPECT/CT in cardiovascular infection;
2. Provide a summary of the current clinical criteria and imaging assessment and management of cardiovascular infection;
3. Develop consensus recommendations on diagnostic criteria, clinical indications, and an algorithmic approach incorporating ^{18}F-FDG PET/CT and radiolabeled leukocyte SPECT/CT imaging in the setting of multimodality imaging (echocardiography/contrast CT) for cardiovascular infection using the validated modified Delphi technique; and
4. Highlight the application of these consensus recommendations in representative clinical cases.

ASSESSMENT OF CARDIOVASCULAR INFECTION

The current assessment of cardiovascular infection involves incorporation of clinical criteria, identification of pathogenic organisms, and findings from an initial imaging approach; however, assessment gaps remain. In the current era, increased device and prosthetic material use create complex considerations that require advanced imaging for optimal decision-making. ^{18}F-FDG PET/CT and radiolabeled leukocyte SPECT/CT provide unique insights into the inflammatory process and can be integrated into the multimodality assessment of cardiovascular infection.

Clinical manifestations

The diagnosis of valvular IE derives from a combination of patient-reported symptoms, clinical and radiologic signs, and complications of the disease. Fever, malaise, and weight loss are common symptoms. Rare but highly suggestive signs of IE include Janeway lesions, Osler's nodes, and Roth spots. Splinter hemorrhages, while more common, are not specific for IE. Cardiac conduction abnormalities occur in approximately 15% [28]. Other complications that can occur at any point during the clinical course include heart failure, stroke, septic emboli, metastatic infection, and immune reactions (such as glomerulonephritis).

IE is broadly classified into NVE and prosthetic valve endocarditis (PVE). Diagnosis of IE relies on the identification of the pathogen and visualization of the infected vegetation. Pathogens can be identified by blood cultures or serologies [29]. In cases of prior antibiotic use or difficult-to-culture pathogens, molecular techniques such as polymerase chain reaction of blood and tissue can be performed [30]. The most common causes of IE in high-income countries are *Staphylococcus aureus*, viridans streptococci, and enterococci [6, 7]. The mainstay for imaging IE is TEE, which has high sensitivity (85–90%) and specificity (>90%) for native valves [31]. These excellent test characteristics are diminished when assessing for prosthetic valve infection. The decreased sensitivity for detecting vegetations in prosthetic valves highlights the need for adjunct imaging techniques.

The modified Duke criteria codify various microbiologic, imaging, and clinical features of IE into diagnostic categories, which are important for establishing diagnostic clarity in research studies [20]. While these criteria are helpful in the clinical setting, they should not replace careful clinical judgment. A key decision point in the management of IE is whether a patient should undergo surgical treatment. Surgical indications are outlined in the most recent American Association for Thoracic Surgery (AATS), American Heart Association (AHA), and ESC guidelines [24, 32-34]. The guiding principles for the medical management of IE include prolonged therapy with bactericidal antibiotics targeted toward the infecting pathogen. Specific recommendations that take into account the pathogen, antibiotic resistance, and native versus prosthetic valve status are outlined in the AHA and ESC guidelines [24, 32, 33]. Current clinical criteria for CIED/VAD/ prosthetic material infections are not welldefined; this is particularly relevant given their increasing use in clinical practice.

CIED-related infection can involve the generator pocket, intravascular/intracardiac leads, or both. Signs and symptoms of infection depend on which hardware is involved, the