

New guidelines urge patients to be vigilant about cardiac infections

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Patients with specific cardiac conditions such as valvular heart disease and congenital abnormalities, or those requiring a pacemaker, should practice good dental and skin hygiene to help prevent rare but potentially deadly infections of the heart's inner lining and valves, according to European Society of Cardiology (ESC) Guidelines on infective endocarditis, published online today in *European Heart Journal*.

"Infective endocarditis is an uncommon but very serious disease that can present with many different symptoms, and thus may be challenging to diagnose," said Guidelines task force chairperson Professor Michael Borger of Leipzig Heart Center, Germany. "Patient education is therefore paramount to [early diagnosis](#) and treatment. Those with valvular heart disease or previous heart valve surgery should be particularly diligent with regards to prevention and recognizing symptoms."

Infective endocarditis refers to an infection of the heart's inner lining, most frequently the heart valves. It occurs when bacteria or fungi enter the bloodstream, for example through skin infections, dental procedures and surgery. Symptoms include fever, night sweats, unexplained weight loss, cough, dizziness and fainting. The infection can lead to destruction of the valve, abscesses and clusters of microbes and cells, which can break into smaller parts that travel to other areas of the body (called embolization). Heart failure, septic shock and stroke can also occur.

Worldwide each year there are nearly 14 new cases of infective endocarditis for every 100,000 individuals and more than 66,000 patients die. "The mortality rate is extremely high and therefore preventive strategies in patients at high risk are pivotal," said Guidelines task force chairperson Dr. Victoria Delgado of the Germans Trias i Pujol University Hospital, Badalona, Spain.

Those at highest risk include survivors of previous episodes of [infective endocarditis](#) and patients with prosthetic heart valves, [congenital heart disease](#) (not including isolated congenital heart valve abnormalities) or a left ventricular assist device. In these patients, [prophylactic antibiotics](#) are recommended before oral or dental procedures.

Patients at intermediate risk are those with pacemakers, severe [valvular heart disease](#), congenital heart valve abnormalities (including bicuspid

aortic valve) and hypertrophic cardiomyopathy, a disease where the heart muscle is thickened. In these patients, the need for [antibiotic prophylaxis](#) prior to dental procedures should be evaluated on an individual basis. Antibiotic prophylaxis is not needed in those at low risk.

The main targets for antibiotic prophylaxis are oral streptococci. The document states that "the emerging and increasing antibiotic resistance among oral streptococci is of concern." Dr. Delgado said, "Streptococci are naturally present in the mouth but can enter the bloodstream when oral hygiene is suboptimal and during dental procedures. Rises in antibiotic use for infectious diseases have led to resistance, meaning that antibiotics become ineffective. Caution in the use of antibiotics is therefore needed and self-medication should be avoided."

The guidelines recommend other [preventive measures](#) for patients at intermediate and high risk including twice daily tooth cleaning, professional dental cleaning (twice yearly for high risk and yearly for intermediate risk patients), consulting a general practitioner for fever with no obvious reason, strict skin hygiene, treatment of chronic skin conditions, and disinfection of wounds. Piercings and tattoos are discouraged.

Recommendations are provided for diagnosis, treatment, and management of complications. Diagnosis is based on clinical suspicion, blood cultures, and imaging. Echocardiography is the first-line imaging technique, and new diagnostic criteria include findings on other [imaging techniques](#). There are new recommendations on the use of computed tomography, nuclear imaging and [magnetic resonance](#) imaging plus novel diagnostic algorithms when the infection involves native heart valves, prosthetic heart valves, and implanted cardiac devices such as pacemakers and defibrillators.

Treatment aims to cure the infection and preserve heart valve function.

The guidelines recommend appropriate antibiotics, determined from blood cultures, as the mainstay of therapy, with duration depending on the severity of infection. Surgery to remove infected material and drain abscesses is indicated for patients with [heart failure](#) or uncontrolled infection, and to prevent embolization. Surgery should generally occur earlier than previously recommended because of improved survival.

One of the worst complications of endocarditis is stroke. Decisions about the timing of surgery in patients who have suffered a stroke must balance the risk of neurological deterioration during the procedure against that of delaying surgical therapy. Novel recommendations are to proceed with urgent heart valve surgery in patients with ischemic stroke due to embolism but delay surgery in patients with hemorrhagic stroke. In addition, thrombectomy (removal of the embolus through a catheter) may be considered in very select patients with stroke.

A new section in the guidelines is devoted to patient-centered care and shared decision-making. Professor Borger said, "Infective endocarditis is a life-threatening condition with lengthy treatment and can be emotionally distressing for patients and families. Patients must be at the center of care to achieve the best physical and mental outcomes."

More information: Victoria Delgado et al, 2023 ESC Guidelines for the management of endocarditis, *European Heart Journal* (2023). [DOI: 10.1093/eurheartj/ehad193](https://doi.org/10.1093/eurheartj/ehad193)

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