Knowing the increased risks that infection, poor general health, invasive procedures, and anesthesia carry for children with pulmonary arterial hypertension, maintaining excellent preventive care is critical to optimizing our patients' well-being. Oral hygiene and regular dental care are important ways in which patients' care teams and families can avoid potential complications.

For the general pediatric population, oral health problems carry a significant burden. For instance, very young children with caries weigh less: they were more than twice as likely to be in the 10th percentile or less for weight than children matched for age, gender, race, and socioeconomic status. Dental caries are extremely common: 40% of all American children aged 2 to 11 years have them, making them the most common chronic disease of childhood; but despite this high prevalence, fewer than half of children visit the dentist. Pediatric dental problems pose significant medical and social burdens, including increased school absenteeism and poor performance, pain, and financial costs. Given the associations between compromised oral health and cardiovascular disease and other poor outcomes in adulthood, it is particularly important to establish excellent dental health early, including a good rapport with the dentist to ensure that procedures are carried out safely.

Moreover, patients who are found to be acutely vasoreactive will often be on long-term, high-dose calcium channel blockers (CCBs), most frequently long-acting nifedipine. Up to 10% of all patients on nifedipine will develop gingival overgrowth, and with a known dose-dependent relationship, the incidence among pulmonary hypertension (PH) patients is likely significantly higher. The overgrowth can create deep pockets that can harbor bacteria and interfere with oral hygiene, as well as create cosmetic issues and potential chewing and nutrition issues. Patients with overgrowth must be especially conscientious about hygiene, and may ultimately require gingivectomy in severe cases. Taking responsive patients off a CCB seriously jeopardizes their clinical stability, so the oral complications may unfortunately be unavoidable. Patients with gingival overgrowth should have professional dental cleaning every 3 months.

When pediatric patients require procedures beyond simple cleaning—such as fillings or tooth extraction—sedation is often offered by dentists and desired by parents. However, this carries a not unsubstantial risk. Adverse events during pediatric sedation occur in up to several percent of cases in the general population. Among the more common adverse events is oxygen desaturation, which can trigger a pulmonary hypertensive crisis. Serious consequences are more likely in outpatient settings, where monitoring for and recognition and prompt treatment of complications are inadequate. Unfortunately, this is precisely the setting in which dental procedures generally take place. As patients with PH are at increased risk of complications with anesthesia, office or surgical center locations are not appropriate for such procedures. The safest option is to avoid sedation or anesthesia all together, but this is highly dependent on the age and developmental level of the child, as well as the extent of the required procedures. Local analgesia is permissible, but epinephrine should ideally be avoided, as there is the possibility of systemic cardiovascular effects. Should sedation be required, the procedure should be done in a hospital setting, with advance discussions with the anesthesia team regarding necessary precautions. Families will likely require help in identifying a dentist with privileges at an appropriate hospital, as well as assistance in justifying medical necessity for an in-hospital operating room, rather than an office setting.

In addition, pediatric PH patients with congenital heart disease (CHD) are predisposed to bacteremia-induced infections. Bacteremia is anticipated following invasive dental procedures. Infective endocarditis, while uncommon, is a life-threatening complication resulting from bacteremia. The vast majority of infective endocarditis caused by oral microflora can result from bacteremia associated with routine daily activities such as tooth brushing, flossing, and chewing. The American Heart Association recommends prophylactic antibiotics for certain dental procedures for patients with unrepaired or incompletely repaired cyanotic CHD, including palliative shunts and conduits, or completely repaired congenital heart defect with prosthetic material or device. Antibiotics are recommended for all dental procedures that involve manipulating gingival tissue or perforation of oral mucosa for cardiac patients with the highest risk. (Details regarding specific conditions, procedures, and antibiotic regimens can be found in Tables 3 through 5 in the original Circulation article.)

It is our responsibility to educate patients and families about the importance of excellent oral hygiene at home and professional dental care. This should be included in conversations about general preventive care. We must also be available to provide clearance and safety guidelines in terms of holding anticoagulation or antibiotic prophylaxis.
as indicated. Keeping in mind that these families already bear significant financial and temporal burdens in tending to their child’s medical needs, it is important to underscore that preventive dental care can prevent more costly, risky, and time-consuming periodontal disease and treatments.

References