

# RAD: Reactive Airways Disease or Really Asthma Disease?

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## THE PROBLEM

A resident presenting on rounds introduces her patient as “a 15-month-old with RAD. He’s had 2 days of wheezing, and we started albuterol and steroids.” A presentation like this is frequently heard on pediatric units despite the vagueness of the term “reactive airways disease,” commonly referred to as “RAD.” The term is often used as a substitute for asthma in young children on asthma medications when pediatricians are reticent to use the “A word.” Yet RAD has no accepted definition and does not add any specificity to the medical vocabulary. The reluctance to use the term “asthma” in a patient in whom asthma medications are being administered, no matter the age, is perplexing. In a field whose terminology is extensive enough to constitute its own language, it is surprising that we have allowed such a term to slip into the medical lexicon.

Recently, members of the Canadian Thoracic Society Asthma Clinical Assembly partnered with the Canadian Pediatric Society to reevaluate clinical practice surrounding the diagnosis and management of asthma in preschoolers.<sup>1</sup> Their position paper asserts that RAD, and other vague and nondiagnostic terms, be abandoned. Accordingly, we call on the analogous pediatric and respiratory societies in the United States and around the world to discourage the continued use of “RAD” across medical settings and wish to open a dialogue on terminology for asthma in young children.

## HOW IT BEGAN AND HOW IT PERSISTED

“Reactive airways disease” and “RAD” have been liberally applied and ever changing since they crept into medical literature in the 1980s. The initial appearances coincided with the use of “hyperactivity of airways” in describing a previously diagnosed asthma patient as someone with “hyper-reactive airways disease.”<sup>2</sup> However, “reactive airways disease” soon was adopted as a synonym for asthma instead of a descriptor for the mechanism of the disease, and the 2 terms began to be used interchangeably.<sup>3</sup> The term “RAD” also laid the foundation for a distinct type of asthma, known as RADS or “reactive airways dysfunction

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syndrome." RADS, a recognized term by the American Thoracic Society and College of Chest Physicians, is a specific type of status asthmaticus triggered by a sudden exposure to a large concentration of irritant in the environment.<sup>4</sup>

Although the use of RAD has expanded over 3 decades, little has been done to elucidate its meaning. The term has not been recognized by the American Academy of Pediatrics, the American Thoracic Society, or the National Heart Lung and Blood Institute to date. The American Lung Association has it listed as "asthma-related item." As early as 15 years ago, a commentary in the adult literature urged that the term RAD be dropped.<sup>5</sup>

#### WHY IT IS A PROBLEM

RAD is not a diagnosis but a description of the primary symptom of asthma. Saying "RAD" rather than "asthma" is akin to saying "dry, itchy skin disease" in lieu of eczema. Although many children only have symptoms of eczema in infancy and we are loath to prescribe topical steroids with the first exacerbation, we do not substitute another name for the disease simply because some children will grow out of it later in life. The same should be true for RAD and asthma.

There are many practical problems with using the nondiagnostic term RAD. First, for health care providers, there is no billing designation in the *International Statistical Classification of Diseases and Related Health Problems* for RAD, and searching for it redirects to "see asthma." Second, in major medical websites and dictionaries, such as WebMD, *Webster's Medical Dictionary*, and *Taber's Medical Dictionary*, there is either no listing for RAD, or it refers back to the entry for asthma. Third, for families and caregivers, this definitional ambiguity is poised to create confusion in trying to understand the RAD diagnosis

given to their children. Fourth, researchers investigating asthma in young children often use the term "RAD," "asthma-like symptoms," or "recurrent wheeze" to identify their subject populations. None of these nonspecific terms has an agreed upon definition. This results in varying inclusion criteria for studies of asthma in preschoolers, making the results of the studies difficult to generalize and interpret.

Yet we understand practitioners' hesitancy in applying the term "asthma" to young children. Asthma and viral bronchiolitis are nearly indistinguishable clinically in the infant and toddler; both patients wheeze and have retractions with cough and nasal congestion. We must make a choice to treat with the gold standard for bronchiolitis, which is currently no treatment at all, or commit to asthma medications of albuterol and steroids. Generally, this difficult decision is made with some informed empirical evidence loosely based on the asthma predictive index.<sup>6</sup> We ask about family history and previous wheeze, and we commit: "Let's give them albuterol and steroids." However, we fall short of committing to the word asthma and call it RAD. Perhaps this is because definitive diagnosis of asthma that can be made by spirometry in children over 5 years of age is not reliable in the typically uncooperative child younger than 5 years, leaving no objective measure to distinguish viral bronchiolitis from asthma.

Moreover, >50% of children diagnosed with asthma early in life will have complete remission or only intermittent asthma by adolescence.<sup>7</sup> The Centers for Disease Control and Prevention reported in 2012 that although 10 million children in the United States had been diagnosed with asthma, only 6.8 million still carried the diagnosis.<sup>7</sup> Many are wary of the stigma associated with a lifelong label of asthma when there is

no way to predict which children will "grow out of it." However, if we are comfortable enough to use the gold standard medications for asthma, albuterol and steroids, why are we not comfortable calling the disease asthma in young children?

#### THE SOLUTION

We call for an abandonment of the term RAD, along with its counterparts "asthma-like symptoms" and "recurrent wheeze." If children are being treated with asthma medications, we should use the term "asthma." If we feel that the word asthma carries too much stigma as a chronic illness that will scare our patients and their families, perhaps we could come up with a modifier to the word asthma when identifying it in young children. We prefer "toddler's asthma" because of its implied end point and need for reevaluation at the end of "toddlerhood" to determine if "real" asthma is present. However, this is just 1 of many terms that may be acceptable; others may include "early asthma" or "transient asthma." We hope that we can start a discussion that will end with the American Academy of Pediatrics, the American Thoracic Society, the American Lung Association, and the National Heart Lung and Blood Institute working together to help guide health care professionals, families, and researchers to a consensus on how to refer to that 15-month-old with recurrent wheezing on albuterol and steroid treatments. We owe it to ourselves and our patients to be clear in our terminology.

#### ABBREVIATION

RAD: reactive airways disease

#### REFERENCES

1. Ducharme FM, Dell SD, Radhakrishnan D, et al. Diagnosis and management of

- asthma in preschoolers: A Canadian Thoracic Society and Canadian Paediatric Society position paper. *Can Respir J*. 2015;22(3):135–143
2. Cagna S. Lighting up: first smoke, now fire in the work place. *The Hartford Courant*. June 16, 1985; A:1
  3. Weinberger M. Pediatric asthma and related allergic and nonallergic diseases: patient-oriented evidence-based essentials that matter. *Ped Health*. 2008;2(5):631
  4. Brooks SM, Weiss MA, Bernstein IL. Reactive airways dysfunction syndrome (RADS). Persistent asthma syndrome after high level irritant exposures. *Chest*. 1985;88(3):376–384
  5. Fahy JV, O’Byrne PM. “Reactive airways disease.” A lazy term of uncertain meaning that should be abandoned. *Am J Respir Crit Care Med*. 2001;163(4):822–823
  6. Castro-Rodríguez JA, Holberg CJ, Wright AL, Martinez FD. A clinical index to define risk of asthma in young children with recurrent wheezing. *Am J Respir Crit Care Med*. 2000; 162(4 Pt 1):1403–1406
  7. Bloom B, Jones LI, Freeman G. *Summary Health Statistics for U.S. children: National Health Interview Survey, 2012* (Series 10, No. 258). Washington, DC: National Center for Health Statistics Vital Health Statistics; 2013

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