

Respiratory compromise needs a useful definition

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The new buzz phrase making the rounds in the respiratory therapy community is “respiratory compromise” (RC). This push to promote RC awareness seems to stem from a conference organized by the National Association for the Medical Direction of Respiratory Care (NAMDRC). There is now a Respiratory Compromise Institute, and the Canadian Society of Respiratory Therapists is on board, offering an online toolkit for practitioners to access a wealth of information. There is no dispute that there exists a period of time preceding respiratory failure in which timely intervention may prevent disease progression. However, this time period is difficult to quantify and, unfortunately, the definition of RC initially put forth by its architects is far too wide and vague to be of any clinical or research value. This presents a unique opportunity for interested clinicians and researchers to develop a pragmatic case definition that is evidence based.

In a monograph outlining the approaches to the different types of RC, Miller and colleagues [1] define RC as “a deterioration in respiratory function in which there is a high likelihood of decompensation into respiratory failure or death but for which timely specific interventions (enhanced monitoring or therapies) might prevent or mitigate decompensation.” Into this definition I could fit both birth and aspirating on dinner as equal states of RC.

From a clinical standpoint this definition does not provide adequate criteria for which practitioners may assess whether a patient is experiencing or at risk of developing RC. The authors of the monograph list a number of risk factors for the development of RC; however, the studies cited do not use RC as an endpoint. Indeed, throughout the paper the authors seem to conflate respiratory failure with RC, or they use mortality or intubation as evidence to support the conclusion that a certain risk factor is a predictor of RC, complicating our understanding. Table 1 of the monograph [1] provides early signs and monitoring options for the differing types of RC. The early warning signs are nonspecific and offer no objective indices for identification of RC. Similarly, the monitoring options do not provide objective clinical thresholds to stimulate intervention. As it stands, the recommendations presented do not offer anything new or novel from which practitioners will be able to identify, treat, or adjust patient plans in the context of RC [1].

The current definition is of little value in research as well. Researchers will have a difficult time dividing study subjects into case and control groups or establishing study endpoints based on the current definition. A brief search of the Medline database using the search term “respiratory compromise.ti” (indicating the search term must be present in the title of the paper) and limiting results to years since the seminal NAMDRC conference identified that researchers are writing their own case definitions of RC, for research purposes. And, not unexpectedly, they differ.



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Without a clear and standardized set of criteria to classify whether or not a person is experiencing RC, researchers have defined their own and these differences across studies make findings noncomparable. As an extension, without a useful case definition—one with which we are able to definitively classify or exclude occurrences—disease surveillance, the ongoing and continuous collection and analysis of health information useful for the purposes of planning and evaluating public health interventions, is not possible.

This brings up some important questions: Why the current RC campaign? Why now? Where is the study showing an increase in RC detection that stimulated the NAMDRC conference? If the campaign is evidence based, where is the evidence? The formulation of the RC campaign may very well

have been instigated by clinicians drawing from their experiences and observations—again, there is no dispute that such a period exists—however, moving forward I encourage those interested in redefining RC do so in consultation of the literature.

The monograph [1] states that its authors hope to stimulate further research in the area of RC. Here is my wish list for researchers heeding this call: create an evidence-based, comprehensive, and objective case definition. The goal here should be to provide clinicians and researchers with a mutually exclusive, collectively exhaustive set of criteria to determine cases and noncases. As noted, there is a dearth of research on RC, specifically with cited reports focusing on events suggested to be a result of RC, so there will need to be an element of creativity. I would suggest reviewing the literature for significant and measurable predictors of measurable outcomes such as respiratory failure, mortality, intubation, etc. This may paint a clinical picture of the window preceding these outcome events, which I “think” is RC.

A handwritten signature in black ink, appearing to read 'Justin Sorge'.

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REFERENCE

1. Morris TA, Gay PC, MacIntyre NR, Hess DR, Hanneman SK, Lamberti JP, et al. Respiratory compromise as a new paradigm for the care of vulnerable hospitalized patients. *Respir Care* [Internet]. 2017 Apr 1 [cited 2018 Jul 31];62(4):497-512. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/28341777>

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