LinkMyCare COPD Program

Z-Scores

Why we are using Z-Scores in the LinkMyCare COPD Program

Z-scores are preferred over FEV1 scores for COPD testing because they eliminate biases related to age, sex, and height, allowing for a more accurate and equitable assessment of lung function impairment. FEV1, while a primary measure, can be affected by these factors, leading to misinterpretations, especially in the elderly.

- **FEV1 (Forced Expiratory Volume in 1 second):** this measures the amount of air exhaled forcefully in the first second of a forced exhalation.
- **Percentage predicted:** FEV1 is often reported as a percentage of predicted values based on age, sex, and height.
- **Z-scores:** these are standardized scores that indicate how many standard deviations a patient's FEV1 value is from the mean for a specific population.

Why Z-scores are better:

- **Eliminate Bias:** Z-scores are "race-neutral" and don't rely on age, sex, or ethnicity-specific equations. This makes them more accurate for comparing individuals of different backgrounds.
- **More Accurate Assessment:** Z-scores provide a more precise understanding of an individual's lung function impairment, regardless of demographic factors.
- **Global Lung Function Initiative (GLI) Recommendations:** The GLI recommends replacing race-specific equations with averaged reference equations for FEV1, including Z-scores, according to a National Institutes of Health study.
- **Staging COPD:** Staging COPD using FEV1 percent prediction can be flawed due to arbitrary cut-off points and age-related declines in FEV1/FVC. Z-scores offer a more scientifically plausible approach.

Benefits of using Z-scores in COPD testing:

- **Improved Accuracy:** Z-scores provide a more accurate assessment of lung function impairment, leading to more precise diagnoses and management strategies.
- **Reduced Bias:** Z-scores eliminate biases related to age, sex, and height, ensuring equitable COPD severity classification.
- **Better Risk Prediction:** Studies suggest that COPD staging using Z-scores better predicts the risk of severe exacerbations, especially in elderly patients.

Example

Two individuals with the same FEV1 % predicted value might have very different lung function based on their age and height. Z-scores would provide a more accurate comparison.

Using Z-scores for COPD testing and staging offers a more accurate and equitable assessment by eliminating biases and providing a more precise understanding of individual lung function impairment.

Find out more

Visit COORDINARE's website for more information about the LinkMyCare COPD Program.