

# Spirometry and its Use in Screening for COPD

Stephan Zehring D.O.<sup>1,2</sup>; Manal El-Hag, M.D.<sup>1,2</sup>; Gino Singer D.O.<sup>1,2</sup>; David Nguyen D.O.<sup>1,2</sup>; Eslam Mohamed D.O.<sup>1,2</sup>; Michael Usbergi D.O.<sup>1</sup>

**1** University of Central Florida/HCA

**2** Heart of Florida



## Background

COPD, a chronic lung condition, is the third leading cause of death in U.S. Studies show that COPD is underdiagnosed worldwide by a margin of 70%, meaning the incidence of COPD is likely much higher. Our aim was to enumerate the prevalence by utilizing spirometry to screen individuals with positive risk factors such as chronic cough, chronic phlegm production, shortness of breath during daily activities, dyspnea, or wheezing for COPD. If more patients screened positive for COPD, we would effectively reduce the prevalence of under-treatment for individuals that may not have the luxury of seeing a pulmonologist be it due to scheduling restraints or socioeconomical status across the Heart of Florida Central patient population. Additionally, for those with diagnosed COPD, we looked to confirm the patient’s diagnosis using spirometry reducing the number of false positive diagnosis based of clinical suspicion vs definitive studies.

## Plan

Our aim was to use spirometry to screen individuals with positive risk factors like chronic cough, 30-pack-year history, phlegm production, shortness of breath, or wheezing for COPD. Objectively, we wanted to increase positive COPD diagnosis from (baseline)% to (+5%) in 1 month among the Heart of Florida Central patient population.

These patients would be obtained through direct referrals made by resident physicians at Heart of Florida Central. These individuals would be offered a follow up appointment during which they would be tested through spirometry after which members of the project would read the spirometry data.

## Do

Patients with diagnosis of COPD by CPT code J44.9 and who were seen by a family medicine resident between the dates of 09/01/22 and 05/01/22 were initially, selected through direct referral for spirometry. These spirometry appointments were separated into weekly blocks within our set timeframe.

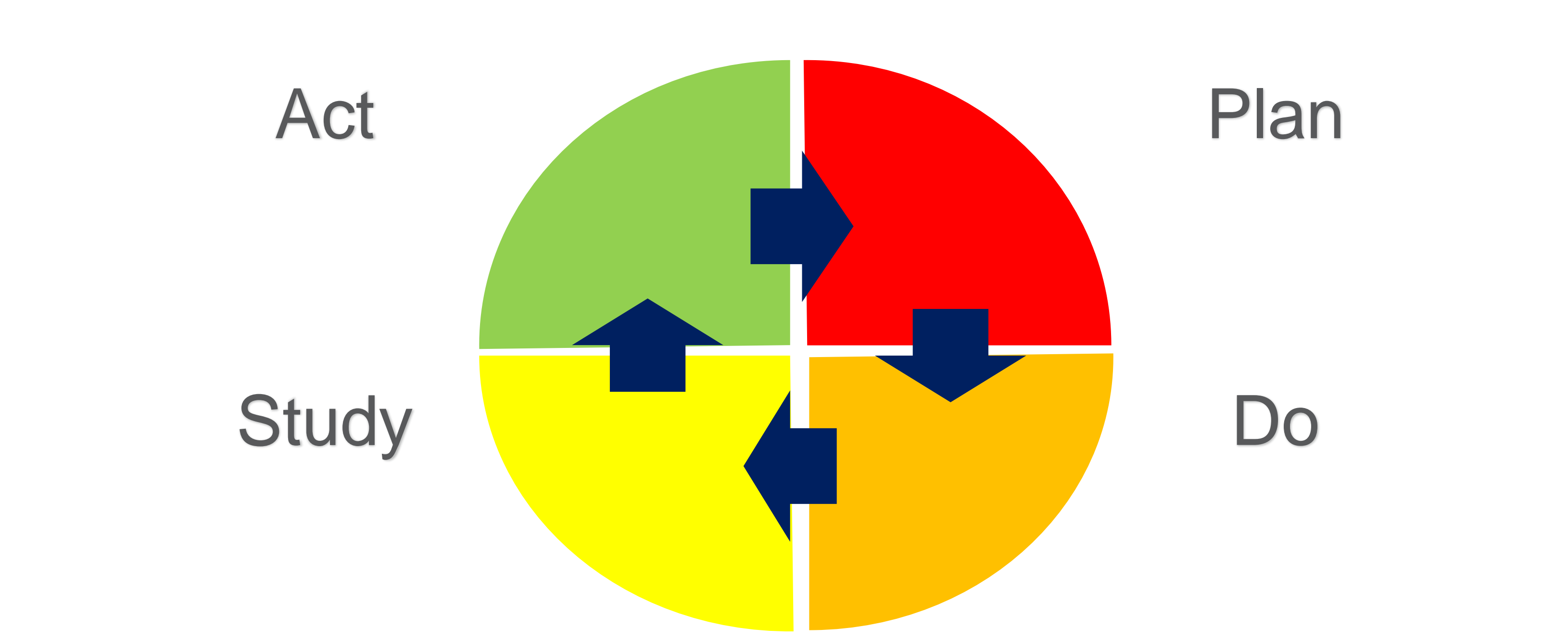
Our numerator would be the diagnosis of COPD in our electronic health records. Meanwhile, the denominator would include all individuals meeting criteria for COPD screening seen by our residents during this time frame.

## Study

Between the dates of 09/01/2022 and -5/01/2022. The diagnosis code for COPD (j44.9) was made 219 times. In office Spirometry was officially obtained on none of them. There was 12 attempts made with insufficient results for interpretation and thus this data was not recorded.

## Act

Several problems appeared in the beginning the project. Using the Play-Do-Study-Act (PDSA) cycle as guidance for changes we identified problems and looked to make adjustments necessary to improve the outcome of our project.



1. Staff members untrained in how to use spirometry machine
  - All medical assistants were trained how to use the spirometry machine properly
2. Incomplete understanding of interpreting spirometry results.
  - Residents were trained on how to interpret spirometry results
3. Scheduling issues with medical and clerical assistants

Additionally, 1/3 the patient population at the Heart of Florida are uninsured. Presenting to the clinic solely for a screening test that may not benefit each patient may limit the number of participants. Additionally, they are taking time out of the busy day and possibly missing work just to come for this test.

## Discussion

Moving forward with the project, we will utilize DRVS which is a centralized reporting and analytics solution which facilitates care transformation, quality improvement, and cost reduction. By using the DRVS, it would be significantly easier to filter patients who are at high risk for COPD or similar illnesses. We would be able to make a call list and having staff members inquire if patients would be willing to make an appointment for spirometry. We will provide every patient with documentation that briefly explains how spirometry will benefit their overall health. This would streamline the process for finding patient's and having them come in for the procedure.

## Conclusion

After our final cycle we have been unsuccessful in properly Coordinating patients for spirometry. Ultimately the aims of the project were not met given that a very limited number of patients presented for spirometry readings, and no one was definitively diagnosed with COPD. However, excellent insight on patient and clinic dynamics were discovered which we expect will help to have a successful impact on future PDSA cycles.

## References

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