

## 12.05 COVID-19 infection and lung function in children with Cystic Fibrosis. A comparison of pre and post infection FEV1.

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**Background:** No studies have evaluated the effectiveness of COVID-19 vaccines in children with Cystic Fibrosis. This study aims to characterise the impact of COVID-19 infection on FEV1 (% predicted) in children with CF and determine if COVID-19 vaccine had an effect on FEV1.

**Methods:** Ethical approval granted for a retrospective single-centre study in UHL. The population was children  $\leq 18$  years with confirmed diagnosis of CF. If COVID-19 infection was identified, the following data points were collected; most recent FEV1 before COVID-19, most recent FEV1 after COVID-19, best FEV1 the following year, COVID-19 vaccination status at time of infection.

**Results:** 86 charts reviewed, n=50 contracted COVID-19, n=7 contracted COVID-19 twice. 40/50 could perform spirometry and were included in analysis (Table 1)

Mean FEV1 increased in both vaccinated (n=32) and unvaccinated (n=8) 1 year after COVID-19 infection (Figure 1). Welch's unpaired *t*-test showed no statistically significant difference between the two groups FEV1% predicted one year after COVID-19 infection (p=0.84). One-way ANOVA did not demonstrate a significant change in FEV1 over the study duration (p=0.36)

**Conclusions:** There was no statistically significant difference in FEV1 between the two groups. The introduction of elexacaftor-tezacaftor-ivacaftor (Kaftrio<sup>®</sup>) is a confounder in this study and likely contributed to the improved lung function.

**Keywords:** Cystic fibrosis, COVID-19, COVID-19 vaccine

**Disclosures:** Nil

**Funding:** Nil

**Conflict of interest:** The authors declare that they have no conflict of interest.

|   | Vaccinated<br>(n=32) | Unvaccinated<br>(n=8) |
|---|----------------------|-----------------------|
| <i>Median Age (Interquartile Range)</i>   | 11 years (6.5)       | 9 years (6)           |
| <i>Number of COVID-19 infections 2020</i> | 1                    | 1                     |
| <i>Number of COVID-19 infections 2021</i> | 8                    | 4                     |
| <i>Number of COVID-19 infections 2022</i> | 26                   | 3                     |
| <i>Number of COVID-19 infections 2023</i> | 4                    | 0                     |
| <i>Total infections</i>                   | 39                   | 8                     |

Table 1. Demographics of population

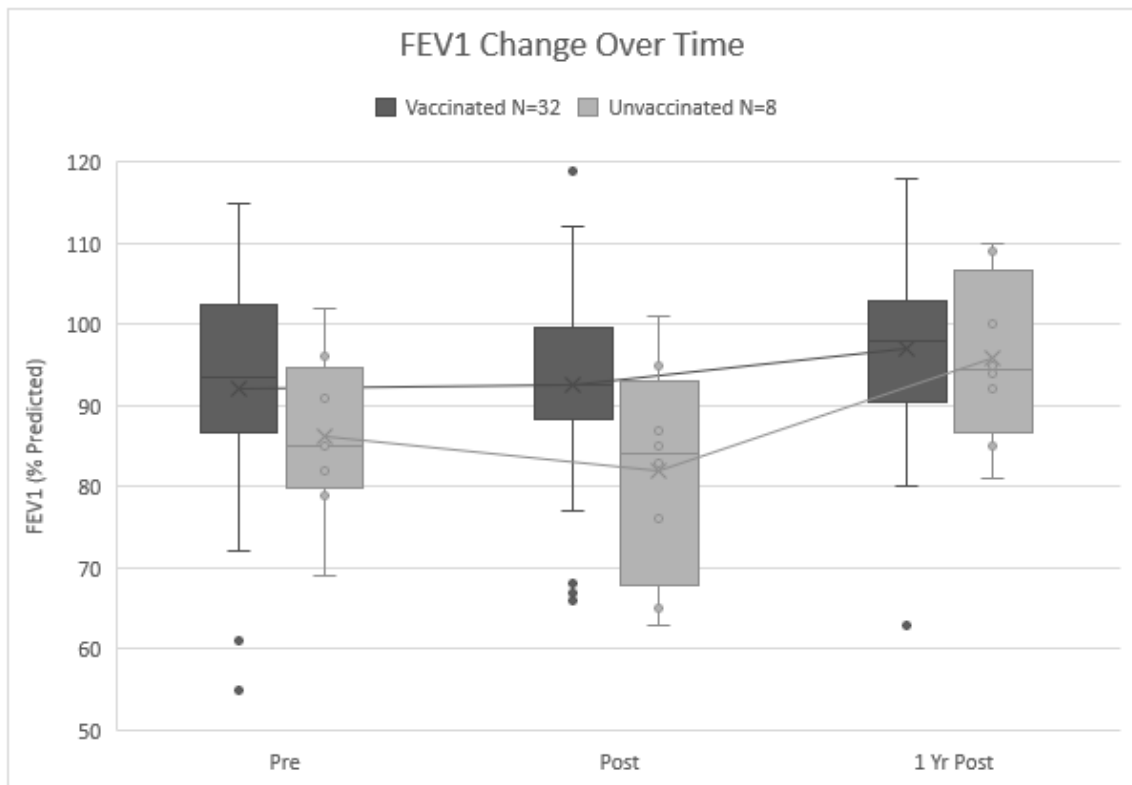


Figure 1. FEV1% Predicted change over time