



Screening for E-Cigarette Use in Patients with Cystic Fibrosis and Primary Ciliary Dyskinesia

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Introduction

- Recent trends demonstrate increased e-cigarette or vaping usage amongst adolescents, despite known adverse health effects including pneumonia, pneumonitis and hemorrhage¹.
- Among youth aged 15-19 years old, 20% have tried e-cigarettes compared to 11% who have smoked tobacco².
- The existing literature is limited regarding the prevalence of e-cigarette use in adolescents with chronic lung conditions who may be at highest risk such as cystic fibrosis (CF) and primary ciliary dyskinesia (PCD).

Methods

- Design:** This was a quality improvement project conducted between November 2022 and May 2023 at The Hospital for Sick Children (SickKids), Toronto, Canada.
- Participants:** Adolescents aged ≥12 years with confirmed diagnosis of CF or PCD were screened during regularly scheduled visits (every 3-4 months) in CF and PCD clinics.
- Existing clinic templates that probed for cigarette smoking were modified to specifically inquire about e-cigarette use.
- This project was approved by the SickKids' quality improvement research ethics board

Results

- Over the 7 months of the project period, 67 patients were screened for the use of E-cigarettes. Their demographic and clinical data are shown on Table 1.

Table 1. Demographic and clinical characteristics of the study population

	CF N=45	PCD N=22	P
Demographic and clinical data			
Female, N (%)	27 (60%)	12 (55%)	0.67
Hypertonic saline therapy	22 (49%)	3 (14%)	0.005
Bronchiectasis on CT	32/41 (78%)	18/21 (86%)	0.47
Pulmonary function			
FEV1pp, median (IQR)	101 (90, 106)	80 (72, 97)	>0.001
FVCpp, median (IQR)	105 (95.5, 109.5)	93 (82, 102)	0.004
FEV1/FVC, median (IQR)	83 (81, 89)	78 (74, 86)	0.07
FEF25%-75%pp, median (IQR)	90 (77, 105.5)	59 (47, 92)	0.02
E-cigarettes screen			
Age at screening	14.4 (12.9, 16)	14.5 (12.7, 16.1)	0.99
Positive history for vaping	1 (2%)	4 (18%)	0.02

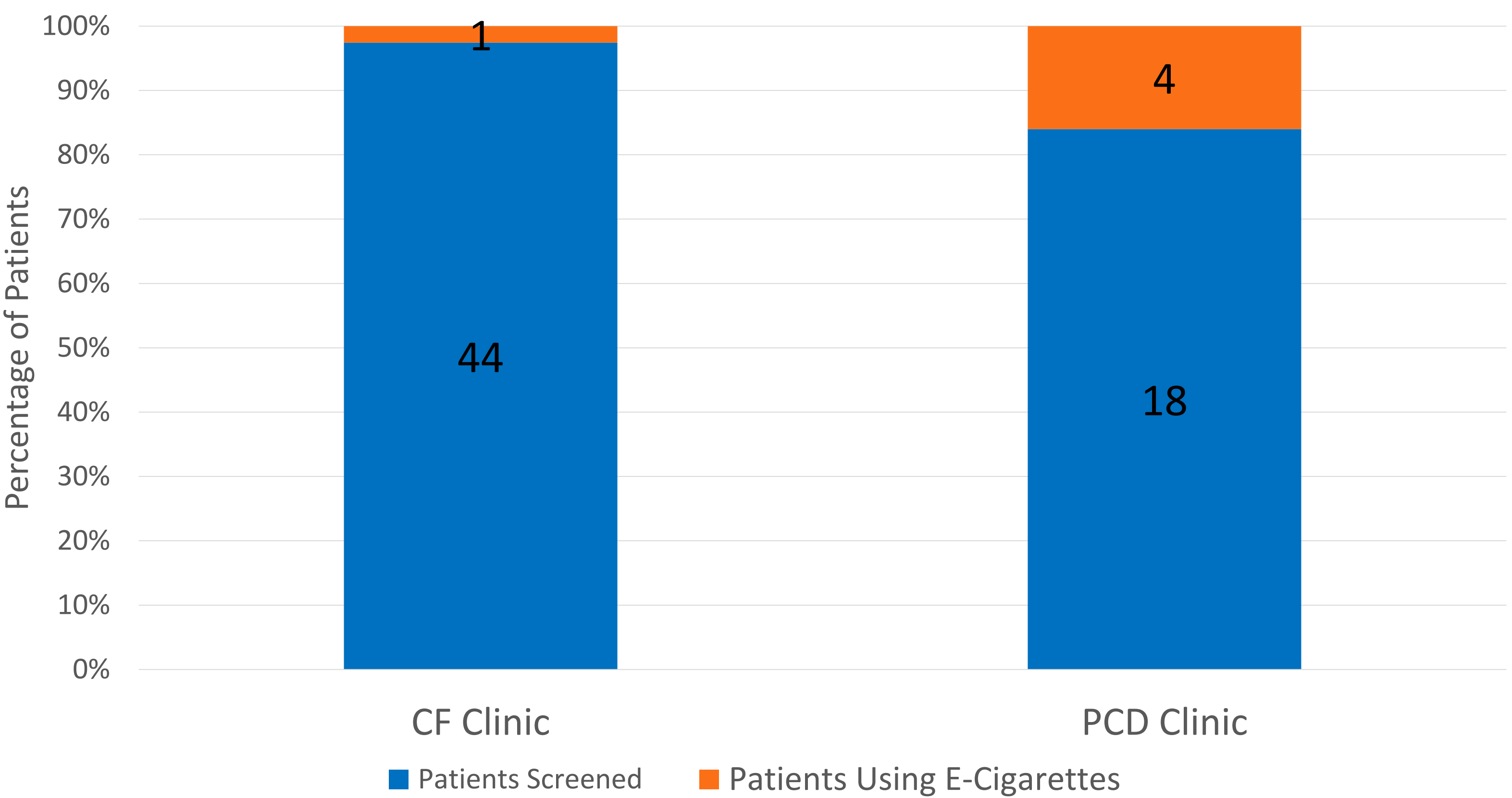


Figure 1: The percentage and numbers of patients aged ≥12 years who screened positive for e-cigarette use followed in the CF (N=45) and PCD (N=22) clinics.

Positive Screening Characteristics

Table 2. E-Cigarette positive screening characteristics

	CF patient	PCD patient 1	PCD patient 2	PCD patient 3	PCD patient 4
Device used	Pen	Pen	Pen	Pen	Disposable
Age of first exposure (years)	12	15	15	13	16
Frequency of use	Several times per week	Daily	Every few weeks	Daily	Several times per week
Location of use	School, home	School, home	Public places	School, home	Home
Smoking alone or with peers	Peers	Peers	Peers	Peers, alone	Peers

Conclusions

- E-cigarette use was found more prevalent in PCD compared to CF in our cohort.
- Clinicians must specifically inquire about e-cigarette usage to provide necessary supports.
- Further studies assessing the clinical impact of e-cigarettes in CF and PCD are needed.

References

- Landman ST, et al. Life-threatening bronchiolitis related to electronic cigarette use in a Canadian youth. CMAJ. 2019
- Thatcher A. E-cigarettes more popular than tobacco among youth. CMAJ. 2015.