

COPD in Heroin Smokers

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Background

- In hospital
 - Admissions (HB)
 - Outpatient cohort (PW)
- Out of hospital
 - The Basement
 - AddAction (Sandra Oelbaum)
 - Sefton (LD/PW)
- Collaboration
 - Screening (SR/TE/SO'L) - £87k
 - RfPB (HB/TE/SR/LD – PW) – Rejected x 2
 - HF Grant - £80k – I4I
 - LSTM (KM/BN) - £80k
- Future

Hospital Readmissions with Exacerbation of Obstructive Pulmonary Disease in Illicit Drug Smokers

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Abstract

Purpose Patients with obstructive pulmonary disease (asthma or chronic obstructive pulmonary disease—COPD) who smoke illicit drugs are at an increased risk of hospital admissions. We compared hospital readmission rates due to exacerbations of obstructive pulmonary disease amongst patients who were current/ex-illicit drug smokers versus current/ex-tobacco smokers.

Methods We reviewed all the admissions between January 2009 and September 2011 with a presumptive diagnosis of an ‘exacerbation of COPD’ retrospectively from our COPD admission database.

Results There were 950 sequential hospital admissions in

failure were more common in illicit drug smokers (8.4 versus 3 %, $p < 0.002$).

Conclusion We have shown that readmission rates in illicit drug smokers with $FEV_1 < 1$ L are higher than in tobacco smokers. Studies are needed to determine whether targeting these illicit drug users with an intensive community intervention package (to include early therapy, pulmonary rehabilitation) will reduce readmission rates in this often neglected population.

Keywords Illicit drug smokers · Tobacco smokers · Hospital readmissions · Exacerbation of obstructive pulmonary disease

620 Tobacco

89 Illicit

Table 1 Characteristics of patients smoking tobacco and Illicit drugs

Characteristics	Ex-tobacco smokers (n = 250)	Current tobacco smokers (n = 370)	Illicit drug smokers (n = 89)	One-way ANOVA/Chi square test, p value
Total Admissions	306	466	178	
Total readmissions	56	96	89	
Mean Hospital readmissions	0.22 ± 0.5	0.26 ± 0.04	1.00 ± 0.23	F(2,706) = 21.4, p < 0.001
Length of hospital stay in days	9.69 ± 0.66	10.28 ± 0.68	7.44 ± 0.72	F(2,720) = 3.27, p = 0.038
Age	72.9 ± 0.6	69.9 ± 0.6	50.0 ± 1.3	F(2,685) = 150, p < 0.001
Gender				
Male	132 (52.8 %)	217 (58.6 %)	55 (61.8 %)	$\chi^2 = 12.3$, df = 2, p = 0.002
Female	118 (47.2 %)	153 (41.4 %)	34 (38.2 %)	
Home Oxygen				
Yes	56 (22.4 %)	60 (16.2 %)	11 (12.4 %)	$\chi^2 = 2.65$, df = 2, p = 0.266
No	182 (72.8 %)	240 (64.9 %)	62 (69.7 %)	
Not known	12 (4.8 %)	70 (18.9 %)	16 (18.0 %)	
Home Nebulisers				
Yes	60 (24 %)	55 (14.9 %)	14 (15.7 %)	$\chi^2 = 5.99$, df = 2, p = 0.05
No	164 (65.6 %)	240 (64.9 %)	67 (75.3 %)	
Not known	26 (10.4 %)	75 (20.3 %)	8 (9.0 %)	
Spirometry				
Had the test	93(37 %)	123 (33 %)	35 (39 %)	
Mean ^a FEV ₁	1.16	1.11	1.17	F(2,242) = 0.328, p = 0.721
Mean ^a FEV ₁ %	51.3 %	46.3 %	44.9 %	F(2,244) = 0.541, p = 0.582

Data presented as no (%) or

FEV₁ in
 ~ 1/3 of all
 patients

Table 3 Readmissions in illicit drug and combined tobacco smokers assessed by FEV₁

Spirometry	Illicit drug smokers (35)			Tobacco smokers (216)			χ^2	p value
	No	Readmission	Mean	No	Readmission	Mean		
^a FEV ₁ < 1 L	16	41	2.56	105	63	0.6	19.66	0.0001
FEV ₁ > 1 L	19	19	0.894	111	60	0.504	1.399	0.236

^a FEV₁: Forced expiratory volume in 1 s

Screening Heroin Smokers attending Community Drug Services for COPD

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 PlumX Metrics

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 Article Info

Background

Heroin smoking is associated with deprivation, early onset severe emphysema, premature morbidity and mortality and high use of healthcare; but individuals engage poorly with traditional health services.

Methods

In this cross sectional study we screened a population of heroin smokers prescribed opiate substitution therapy for airway disease with community drug services. We assessed drug exposure, respiratory symptoms, health status and COPD prevalence. Subjects completed spirometry, MRC and CAT.

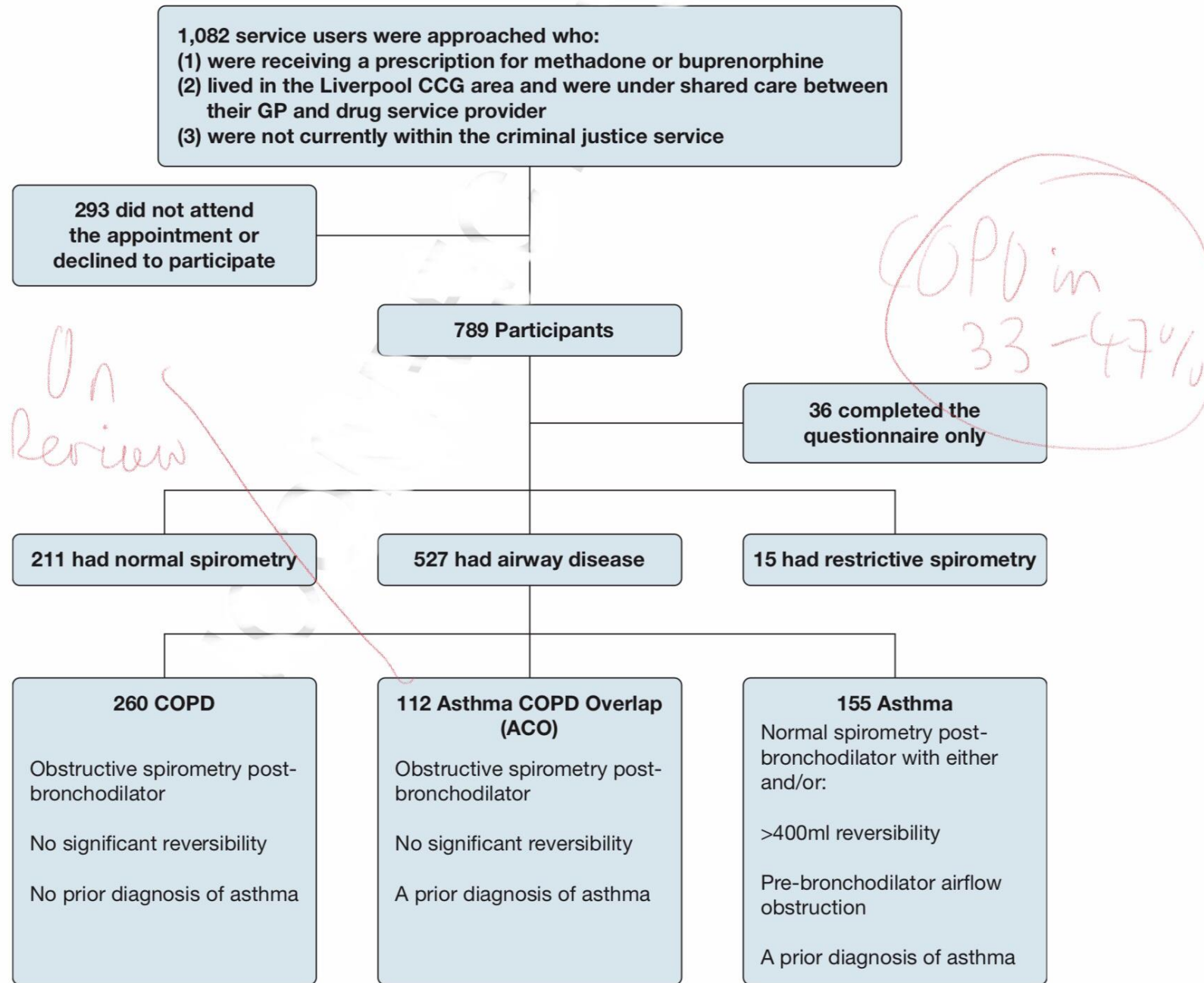


Figure 1 – Consolidated Standards of Reporting Trials diagram detailing study flow and diagnosis. GP = general practitioner.

TABLE 2] Demographic, Symptom, and Spirometry Data Divided According to Diagnosis

Q31

	COPD (n = 260)	ACO (n = 112)	Asthma (n = 155)	Normal (n = 211)	P Value
Age, y	49.3 ± 6	48 ± 5	46 ± 7	45.9 ± 6.5	< .001 ^a
BMI, kg/m ²	23.9 ± 4.7	24.6 ± 6.3	25.6 ± 6	26.2 ± 5.9	< .001 ^a
Oxygen saturation	96 ± 2	96 ± 4	97 ± 1	97 ± 1	< .001 ^b
Postbronchodilator					
FEV ₁ (L)	2.45 ± 0.98	1.96 ± 0.85	3.16 ± 0.7	3.55 ± 0.8	< .001 ^b
FEV ₁ (%)	73.3 ± 25.2	63.5 ± 25.1	95.5 ± 17.1	103.7 ± 16.1	< .001 ^b
FVC (L)	4.26 ± 1.2	3.6 ± 1.19	4.4 ± 1.02	4.64 ± 1.1	< .001 ^b
FVC (%)	104.4 ± 21.5	97.1 ± 26.6	110.2 ± 15.1	110.8 ± 15.4	< .001 ^b
FEV ₁ /FVC	0.56 ± 0.13	0.53 ± 0.12	0.73 ± 0.09	0.77 ± 0.04	< .001 ^b
MRC score (1-5)	3.1 ± 1.3	2.9 ± 1.2	2.5 ± 1.2	1.9 ± 1	< .001 ^{a,c}
CAT score (0-40)	22.9 ± 10.1	21.5 ± 10.4	19.6 ± 9.4	13.4 ± 9.2	< .001 ^{a,c}
Smoking pack-years	31.8 ± 20.6	29.3 ± 16.7	27.3 ± 21.3	26.1 ± 19.1	NS
Years smoking cigarettes	34.1 ± 20.6	33.1 ± 6	30 ± 8	30 ± 7.8	< .001
Current cigarette smoker	234 (90)	98 (88)	140 (90)	187 (89)	NS
Heroin wrap-years	23.8 ± 32.4	23.4 ± 34.3	27.1 ± 37.3	17.5 ± 24.3	NS
Years smoking heroin	24.5 ± 8.4	23.6 ± 8.1	21.3 ± 9.2	20.2 ± 9.2	< .001 ^b
Current heroin smoker	151 (58)	61 (54)	71 (46)	94 (45)	< .01 ^b
Crack rock-years	17 ± 27	17.7 ± 42.8	13.4 ± 20	15.7 ± 40.1	NS
Years smoking crack cocaine	14.6 ± 8.8	12.4 ± 8.2	14 ± 8.3	11.4 ± 8.1	.03 ^d
Current crack smoker	64 (25)	24 (21)	45 (29)	49 (23)	NS
Cannabis joint-years	98.9 ± 177.8	64.6 ± 93.3	103 ± 159	80.7 ± 121.4	NS
Years smoking cannabis	21.3 ± 13.5	16.8 ± 13.9	20.3 ± 13.1	18.8 ± 12.4	NS
Current cannabis smoker	76 (29)	24 (21)	51 (33)	64 (30)	NS

Results are presented as mean ± SD, No. (%), or as otherwise indicated. Results for the 15 participants with restrictive spirometry are not included because of small numbers. ACO = asthma-COPD overlap; NS = not significant. Q32

^aIn post hoc testing, participants with COPD differed from asthma and normal.

^bIn post hoc testing, participants with COPD and ACO differed from asthma and normal.

^cIn post hoc testing, participants with ACO differed from normal.

^dIn post hoc testing, participants COPD differed from the normal subjects but not those with asthma.

TABLE 4] Demographic, Symptom, and Spirometry Data Divided According to COPD Severity

	Mild (n = 114)	Moderate (n = 97)	Severe and Very Severe (n = 49)	P Value
Age, y	49 ± 5.9	48.9 ± 5.9	50.4 ± 6.2	NS
BMI, kg/m ²	24.2 ± 4.1	24.2 ± 5.2	22.4 ± 4.5	< .05 ^a
Oxygen saturation Postbronchodilator	97 ± 1	96 ± 2	95 ± 3	< .001 ^b
FEV ₁ , L	3.26 ± 0.66	2.18 ± 0.5	1.11 ± 0.39	< .001 ^b
FEV ₁ , %	95.7 ± 11.1	66.9 ± 9.7	33.9 ± 10.5	< .001 ^b
FEV ₁ /FVC	0.65 ± 0.04	0.56 ± 0.09	0.36 ± 0.09	< .001 ^b
MRC score (1-5)	2.1 ± 1.1	3.1 ± 1.2	3.9 ± 1.2	< .001 ^b
CAT score (0-40)	15.8 ± 9.2	24.1 ± 9.5	27.3 ± 9.4	< .001 ^b
Cigarette pack-years	29.8 ± 20.5	34.1 ± 22.4	31.7 ± 16.6	NS
Years smoking cigarettes	33.5 ± 7.8	33.9 ± 6.6	35.9 ± 8	NS
Heroin wrap-years	23.7 ± 34	25.2 ± 34.3	21.3 ± 25.4	NS
Years smoking heroin	23.2 ± 9.1	25.7 ± 7.7	25.5 ± 7.6	NS
Crack rock-years	20.8 ± 31	16.5 ± 25.6	9.2 ± 16.3	NS
Years smoking crack cocaine	14.1 ± 8.4	15.9 ± 8.7	13.2 ± 11.3	NS
Cannabis joint-years	117.8 ± 173	109.2 ± 214.4	26.5 ± 34.1	NS
Years smoking cannabis	23.1 ± 12.4	21.1 ± 13.8	16.8 ± 15	NS

Results presented as mean ± SD or as otherwise indicated. Joint year = one joint per day for 1 y; Pack year = 20 cigarettes per day for 1 y; Rock year = 20 rocks per week for 1 y; Wrap year = 20 wraps per week for 1 y. See Table 1 and 2 legends for expansion of other abbreviations.

^aIn post hoc testing, people with severe or very severe COPD differ from mild COPD only.

^bIn post hoc testing, people with severe or very severe COPD differ from all other groups.

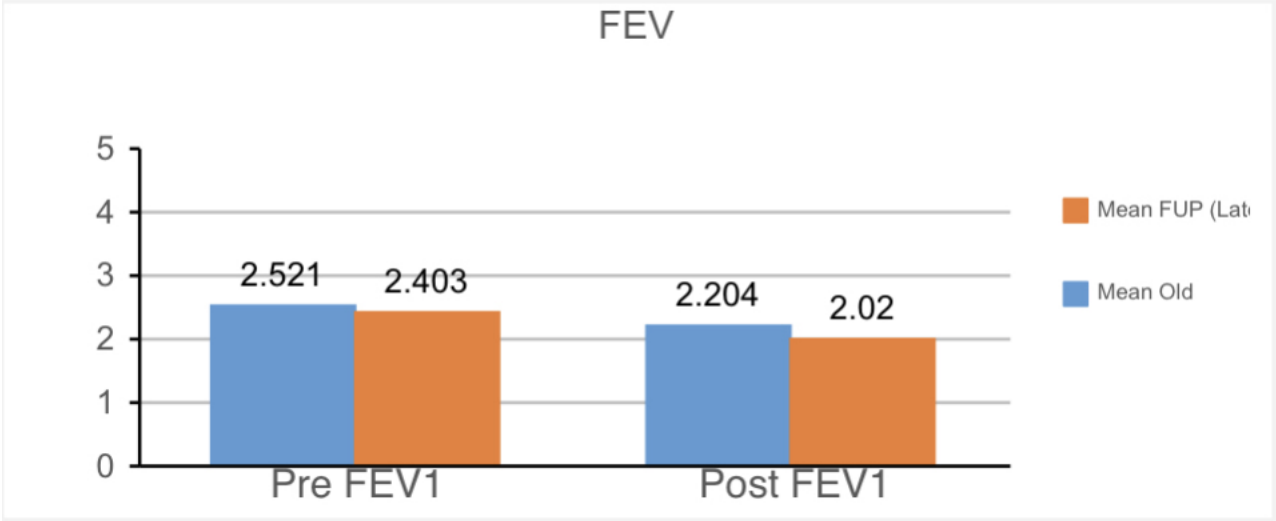
TABLE 3] Change in Diagnosis as a Result of Spirometry Testing

	Diagnosis Before Study		
	COPD (n = 169)	Asthma (n = 220)	Normal/No Diagnosis (n = 364)
Diagnosis after study			
COPD (n = 260)	88	3	169
ACO (n = 112)	0	112	0
Asthma (n = 155)	28	98	29
Normal (n = 211)	48	0	163
Restrictive (n = 15)	5	7	3

See [Table 2](#) legend for expansion of abbreviation.

HF Grant and MRC Phd

Bridging the gap between the substance misuse clinic and community COPD services



HF Grant and PRC PhD

Bridging the gap between the
substance misuse clinic and
community COPD services

	Pre_FEV1_L	Post_FEV1_L	MRC	CAT1
Number of valid patients - ie that have two valid scores to compare	58	112	155	157
Average Variance between latest and original result	-0.12	-0.18	0.79	0.39
<u>12 month pro rata</u>				
	Pre_FEV1_L	Post_FEV1_L	MRC	CAT1
Number of valid patients - ie that have two valid scores to compare	58	112	155	157
Average Variance between latest and original result	-0.08	-0.12	0.53	0.26

HF Grant and MRC PhD

Bridging the gap between the
substance misuse clinic and
community COPD services

- Repeat Spirometry 18/12 later
- Repeat CAT
- Intervention in 180 patients (should have been smaller groups)
- PR – 24 (failed)
- CRT (7 – worked)
- GP appts ?worked

Unanswered questions

- Why are those with normal spirometry so breathless?
- (Hard to answer outside hospital)
- How bad is heroin for the lungs?
- (?Impossible to separate effects from tobacco)
- What can we do about it?
- (Non-colocation hasn't really worked)
- How do we take this work forward?
- (...something more ambitious?)

Next steps

Is the job done?

- HS&DR
- ? Larger Health Foundation Grant
- Other ideas?
- Collaboration
 - Most impressive aspect of work so far
 - Need more
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